A critical analysis of information poverty from a social justice perspective

By

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Thesis

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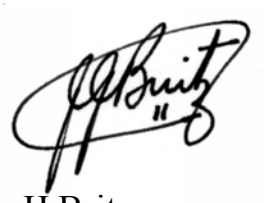
I declare that

A critical analysis of information poverty from a social justice perspective

Is my own work and that all the sources that I have quoted have been indicated and acknowledged by means of complete reference



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Summary

A critical analysis of information poverty from a social justice perspective

Information poverty is one of the main forms of poverty today that affects the lives of billions of people on a daily basis and as such it is argued in this thesis that this form of poverty should be on the world's moral agenda – not merely as a discussion item but as an action item. It is furthermore argued that the information and knowledge society cannot be build without taking into consideration the moral challenges associated with this form of poverty.

The research question guiding this thesis is as follows: What is information poverty and why is it a serious moral issue that needs to be addressed today? To be able to answer this question five key issues are addressed. They are as follows:

- The analysing, unpacking and understanding of the different dimensions and moral implications of poverty through the use of social sciences (Chapter 1).
- The investigation and analyzing of the notion of information, specifically in terms of its relationship to poverty. (Chapters 2 & 3).
- The analysing, unpacking and understanding of information poverty, both in terms of its complexity as well as social, political, personal and moral dimensions (Chapter 4).
- A reflection, from a social justice perspective, on the moral concerns associated with information poverty. This is done through the use of philosophy and social sciences (Chapter 5).
- The development, based on social justice and human rights, moral guidelines that can be used to address the different moral concerns associated with information poverty (Chapter 6).

In Chapter 2 poverty is defined as that condition of life where the majority of people lack sufficient resources to supply their basic needs for survival. As such it indicates the socio-economic status of people and communities, together with its impact on just about every aspect of their lives. It is illustrated that poverty has a strong moral claim on society.

In Chapter 3 the notion of information is discussed from a diachronic perspective and an own approach to information is presented. Based on the three worlds of Popper different characteristics of information are identified and discussed. The implications of these characteristics on information poverty are illustrated.

Chapter 4 focuses on information poverty. A basic definition is presented and different degrees as well as levels of information poverty are also distinguished. It is argued that this form of poverty has an overall impact on the development of people.

In Chapter 5 information poverty as a serious moral issue is discussed. Following from this social justice in terms of its scope, application and functions is analysed with regards to information poverty. Based on the value statement that the alleviation of information poverty serves a common good purpose, it is argued that there are two moral principles that meet the requirement of universal validity and that can be used to guide moral decision-making regarding information poverty. These are justice and human rights.

In Chapter 6 several moral guidelines, based on social justice, are presented that can be used to address the moral concerns raised by the condition of information poverty.

Keywords:
Information, data, knowledge, poverty, information poverty, social justice, human rights, globalization, economics of information, ethics, morality, information and communication technologies.

Opsomming

‘n Kritiese analise van inligtingsarmoede vanuit ‘n sosiale geregtigheid perspektief

Inligtingsarmoede kan beskou word as een van die primêre vorme van armoede wat die lewe van biljoene mense op ‘n daaglikse basis beïnvloed. Dit is om die rede dat daar in hierdie proefskrif geargumenteer word dat inligtingsarmoede tuis hoort onder die internasionale morele agenda – nie net in terme van ‘n agenda item nie, maar as ‘n aksie item. Daar word ook verder geargumenteer dat dit onmoontlik is om inligting– en kennisgemeenskappe te bou sonder om die morele aspek van inligtingsarmoede in berekening te bring.

Die navorsingsvraag van hierdie proefskrif kan as volg geformuleer word: Wat moet verstaan word onder inligtingsarmoede, waarom is dit ‘n ernstige morele saak en wat kan daaromtrent gedoen word? Ten einde hierdie sentrale vraag te beantwoord is vyf sake aangespreek. Hierdie sake kan as volg saamgevat word:

- Die ontleding, analisering en verstaan van armoede met sy verskillende dimensies en morele implikasies. Dit is gedoen vanuit ‘n sosiaal wetenskaplike perspektief (Hoofstuk 2);
- Die ondersoek na, en analisering van inligting, met spesifieke klem op die verhouding waarmee inligting staan tot armoede (Hoofstuk 3);
- Die ontleding en verstaan van inligtingsarmoede in terme van die kompleksiteit daarvan asook die sosiale, politieke, ekonomiese en individuele dimensies daarvan (Hoofstuk 4);
- ‘n Refleksie, vanuit die perspektief van sosiale geregtigheid, op die morele dimensies van inligtingsarmoede. Dit is gedoen vanuit die Filosofie asook Sosiale Wetenskappe (hoofstuk 5);
- Die ontwikkeling van morele riglyne wat gebruik kan word om inligtingsarmoede te help oplos. Hierdie riglyne is gefundeer in sosiale geregtigheid asook menseregte (Hoofstuk 6).

In hoofstuk 2 is armoede omskryf as daardie kondisie van lewe waar die meerderheid mense ‘n gebrek het aan die noodsaaklike hulpbronne om te kan oorleef. Hiermee word die sosio-ekonomiese status van mense aangedui waarvolgens bykans elke aspek van hul lewe geraak word. Die morele implikasies van armoede is ook bespreek.

Hoofstuk 3 bespreek, vauit ‘n diakroniese perspektief, die begrip inligting en ‘n eie benadering tot inligting word voorgestel. Gebaseer op die 3-wêreldbeeld van Popper word unieke eienskappe van inligting beskryf. Die implikasies ten opsigte van inligtingsarmoede word duidelik uiteengesit.

Hoofstuk 4 fokus op inligtingsarmoede self. ‘n Werksdefinisie word gegee en die verskille vlakke en grade van inligtingsarmoede word beskryf. Klem word gelê op die feit dat hierdie vorm van armoede bykans alle sfere van die menslike lewe kan beïnvloed.

In hoofstuk 5 word die ernstige morele aspekte wat geassosieer word met inligtingsarmoede bespreek. Na aanleiding hiervan word sosiale geregtigheid in terme van reikwydte, impak en toepassing volledig bespreek. Dit word gedoen met die oog op die toepassing daarvan op inligtingsarmoede. Gebasseer op die waardestelling dan die oplossing van inligtingsarmoede deel uitmaak van die gemeenskaplike strewe van die mensdom word voorsgestel dat sosiale geregtigheid en menseregte dié twee morele konsepte is wat universele validasie het om hierdie probleem aan te spreek.

In hoofstuk 6 word agt morele riglyne geformuleer wat gebruik kan word om inligtingsarmoede mee aan te spreek. Hierdie riglyne is gebasseer op sosiale geregtigheid asook menseregte.

Table of Contents

List of Figures and Tables

CHAPTER 1

INTRODUCTION

General introduction and statement of problem

Information poverty is one of the main forms of poverty today. It relates to an individual's or communities inability, not only to access essential information but also to benefit from it in order to meet their basic needs for survival and development.

Information poverty, as I will explain in this thesis, is a rather complex notion and many factors contribute to this condition. One of the primary contributing factors is the shift from the industrial era to the information era which is characterised by a new information based economic model (Moore, 1998). This paradigm shift is made possible by the development of modern information and communication technologies (ICT). Modern ICTs brought about profound transformation in the information and knowledge landscape. These technologies are indeed the most spectacular and revolutionary technologies ever developed when it comes to the creation, distribution, dissemination and repackaging of information, and the interactive sharing of knowledge. What has changed is not the fact *that* people create, manipulate and use knowledge - this has always been the case. However, a fundamental change has taken place in the *way* in which knowledge is created, manipulated and used.

This paradigm shift towards the economics of information introduced advanced capitalism as well as the process of globalisation. Through globalisation a network of economic and social networks is created and the gap between rich and poor countries is no longer a "physical object gap", but has become rather an "immaterial information gap" (Clark, 2001). Open markets and competitiveness have made it imperative to invest in innovation and knowledge production. Research and development (R & D) as well as higher education increasingly play a crucial role in knowledge production and innovation to meet these new demands (Friedman, 2005). This has led to greater investment in knowledge production.

The problem is, however, that information and knowledge societies emerged at the expense of the so-called information and knowledge poor countries. Scholars such as Rifkin (1995), Haywood (1995) and Chatman (1996) started in the nineties to distinguish between information rich and information poor countries. ICT statistics support their claim. For example:

- One third of the world's population is illiterate.
- More than 2 billion people live under $2 a day.
- In the USA there are more computers than in the rest of the world (combined).
- The ten richest nations in the world are responsible for 84% of total expenditures on R & D.
- 20% of the world's population is responsible for 90% of Internet usage (World Bank Report, 1999/2000 & Human Development Report, 1998/99).

What needs to be stressed here is that, although ICT played a dominant role in dividing the world between information haves and information have-nots, and the role of ICT should therefore not be underestimated, information poverty is not restricted or limited to a technology/digital divide only. The information divide is not limited to the 'technology insiders' and "technology outsiders" of cyberspace (Floridi, 2001). It is a much more complex phenomenon including issues such as cultural and language diversity, levels of education and the ability/inability to access and benefit from information as well as the ability/inability to participate in a meaningful way in the new information based economy. Furthermore, the divide between the information rich and the information poor is not only a divide between societies and countries. It occurs also between individuals who might share the same culture and physical space.

Information poverty is furthermore not only of a political, cultural and socio-economic nature. We live in a new emerging global information society where we are, more than ever before, dependent on creation of, access to, sharing and manipulation of information. This has created new power relationships and also raised questions and concerns such as the fundamental freedom of people, the right to freedom of expression and communication, the right of access to information and the fair distribution of information in the market place. This emerging global information society and the growing

divide between the "information have" and "information have nots" is therefore also a serious moral concern.

Because information poverty affects the lives of billions of people on a daily basis it should be on the world's moral agenda of social responsibility. It is a moral imperative that the continuous construction of the growing information society be regulated by a set of universal principles based on social justice. This statement serves as my basic motivation for writing this thesis: *viz*. to reflect, from a moral, and more specifically a social justice perspective, on the problem of information poverty and to formulate broad ethical principles that can be used to guide the social, economic and political initiatives to solve information poverty and to create a fair and equitable information society.

The central statement of the problem can be formulated as follows:

- to investigate, from a moral perspective, the notion of information poverty in terms of its definition and causes;
- to investigate the relationship between information poverty and social justice and
- to identify suitable moral guidelines that can be used to address the moral concerns associated with information poverty.

I unpack this problem by asking and addressing the following sub-problems:

- What is poverty and why is it a matter of moral concern?
- What is information and what is the relationship between information and poverty? A clear understanding of this relationship is necessary for the understanding and definition of information poverty.
- What is information poverty and what are the main reasons contributing to this condition? An understanding of the reasons that lead to information poverty will shed light on the moral concerns associated with information poverty.
- Why is information poverty a serious moral concern and how can social justice be used as a moral tool to guide the decision-making processes in finding solutions to information poverty? Understanding of social justice will help to formulate moral guidelines to address many of the problems associated with information poverty.

- What are the moral guidelines, based on social justice, that are appropriate to address the different moral concerns associated with information poverty? This question can be seen as the practical application of the theoretical reasoning regarding information poverty.

1.2 Research methodology

The best approach in my opinion to address information poverty is from interdisciplinary work. I therefore use sociological explanations in my discussion on poverty and rely on both social and information sciences to understand and define information poverty. I make use of recent philosophical theories of justice to understand and explain the moral challenges associated with information poverty. I used the grounded theory as a research method to systematically gather and analyze the data.

It is clear that a quantitative approach alone cannot be used to address the problems that I raise in this thesis. The research is therefore primarily qualitative in nature and the techniques I used for collecting empirical data is mainly focused on secondary sources. I consulted amongst other bibliographic databases, citation indexes, journal articles, text books and of course the Internet to gather my information.

I used quantitative methods to determine and evaluate some important statistically information, for example, the number of Internet users in a particular country.

The mode of analysis is mainly of a hermeneutical nature focusing on the understanding of text within a particular social and cultural setting of people.

Scientific knowledge is supposed to be reliable knowledge. The question then arises: What makes the knowledge created in this thesis reliable? There are three possible qualitative approaches. These are the positive qualitative approach, the interpretative research approach as well as the critical inter-subjectivity approach (Olivier, 2004; Myers, 1997; Mouton, 2000). The positive quality approach assumes that there is an objective reality that can be known. The interpretative research approach assumes that there is no objective truth or reality and that it cannot be known. Truth and reality can only be known through social constructions such as language, consciousness and shared meanings. The philosophical base of interpretive research is predominantly phenomenological in nature. The critical inter-subjectivity

approach offers an alternative to the first two approaches. The main objective of critical inter-subjectivity research is seen as being one of social critique. I used this approach because the inter-subjective role of the researcher is clearly outlined. This approach allows the researcher to analyze and interpret data within the framework that reality is socially constructed. This allows for moral reasoning and reflection on the problem of information poverty.

1.3 Current research

Although the use of the concept of information poverty dates from the early nineteen fifties (Lievrouw & Farb, 2003) in was only recently (since the nineteen nineties) that there has been a real interdisciplinary research interest in the notion of information poverty. The best known study representing this era is arguably the work of Haywood, *Info-Rich - Info-Poor: Access and Exchange in the Global Information Society* which was published in 1995. His book deals mainly with information technology and access to information and the moral issues associated with information poverty are not addressed.

Based on a literature survey I will highlight contributions to this field of study. The list is not exhaustive but covers some of the main contributions.

- Cronin (1992:32) defines information poor as "[n]ot knowing what options exist, being an information "have-not", [who] threatens to create a class of electronically colonised infopoor techno-peasants". Information poverty is therefore defined as not knowing what options are available.
- According to Buckley (1987:43) information poverty implies the absence of computers and access to communication: "People without computers and access to communication lines will be the information poor in the future unless other avenues for access are provided by libraries".
- Chatman (1996) emphasises the fact that information poverty is a "complex social and cultural phenomenon" and cannot be seen as equal to economic poverty. "I was influenced by a debate in which information poverty and economic poverty were interchangeable conditions of need. After systematically examining this relationship, however, I cannot support this argument" (Chatman, 1996:194).
- Information poverty is also understood and defined in direct relation to the human being and his/her attitude towards information. Akhtar & Melesse (1994:314), for example, see the problem of information poverty

as an extremely complex one that encompasses factors such as attitudes, managerial skills and finances: "The general lack of appreciation of the role of information, the almost non-existent national information policies and the recurrent, inadequate financial resources allocated to information systems and networks development and maintenance have severely deterred the use of information to solve Africa's socio-economic problems". In support of this definition, Tapscott (1995:294) enhances the importance of education which must, according to him, be seen as central to address the problem of information poverty. According to Ponelis (1998), the information poor can be defined as those who lack information (literacy) skills such as the ability to locate data leading to information, choose from amongst a variety of sources, analyse and interpret what has been gathered for relevancy and accuracy as well as the ability to discriminate between sources of information.

- Information poverty is further described as a geographical phenomenon embodied internationally (e.g. so-called information rich and information poor countries) as well as nationally in terms of geographic areas (e.g., rural *vs* urban areas) (Chatman1996; Braman, 1998).
- The terms information poverty and richness are also associated with information technology and the inaccessibility thereof (Doctor, 1991; Robins &Webster, 1999; Haywood, 1995).
- As is partly illustrated above, information poverty is also seen in relation to access to information. In 1986, the Congress of Librarians in the USA dedicated an entire conference to the causal relation between information poverty and access to information. According to Aguolu (1997) access to information (which is seen as a prerequisite to becoming part of the information society) will remain a myth for developing countries until they overcome prevailing obstacles such as a high rate of illiteracy, unawareness of the relevance of information and a lack of infrastructural facilities.
- There are also some indirect references in which the term "information poverty" is not explicitly used, but reference is for instance made to "the gap". Steele-Vivas refers to a gap between those who have access to information and the masses of dispossessed and alienated populations (1996:160). For Broadbent (1992:194), the gap is a knowledge gap which he believes is growing at an exponential rate between the North and the South. He perceives this growing gap to have introduced a dependency relationship with regards to access and use of information.

- Manuel Castells wrote extensively on the information society, including the so-called information gap. He uses the concept "informational city" to explain this gap. He discusses how the concept can be used to analise the changes of class structures in cities due to the flow of information and ICT, as well as to assess cultural developments due to these changes. This flow of information, which is a central feature of his notion of the information society, created a class structure between those who control the flow of information and the so-called "underclass". This creates social disparities between those who control information and the poor who do not occupy information related occupations (1989, 1994, 1998). This distinction made by Castells led the well know sociologist Frank Webster (1995:209) to conclude that "…we may legitimately talk here of the information rich and the information poor in the world city".
- Herbert Schiller, the well known Critical Theorist, approaches the notion of information poverty from a socio-economic perspective. According to him the political economy of the production and distribution of information is based on advanced capitalism. This has not only led to the commoditisation of information, but also to the creation of a class structure comprising of those who can pay for and own information versus those who cannot. Based on his Marxist interpretation of society he argues that this "information gap" will lead to an "information revolution" (1983, 1984).
- For Floridi (2001) the divide between the information rich and the information poor is not limited to the "technology insiders" and "technology outsiders" of cyberspace. He argues that this divide also relates to culture, language and context and is therefore a complex phenomenon.
- Lievrouw and Farb (2003), in their research on information poverty, focus on so-called "information inequities" and make a distinction between a vertical or hierarchical perspective and a horizontal or heterarchical perspective. According to this view the vertical perspective represents an approach where access and use of information is seen as a function of individual and group demographics and information inequality is determined by the socio-economic status of people. According to the horizontal perspective, individuals and groups with similar economic and social traits may have different information needs as well as different experiences regarding access, use and needs of information. This can also create information inequities.

- In the field of information science very little research has been done on information poverty and social justice. In most cases, information poverty is approached from an information literacy perspective where the focus is on the ability to identify information needs and to find and benefit from relevant information (Sweetland, 1993).

1.4 Limitations of current research and value of this study

Based on an overview of the current literature, as summarised in the previous paragraphs, it is evident that what is missing is a thorough and in-depth analysis of information poverty. Research has also been limited in the understanding of the multi-dimensional causes of information poverty as well as its complex nature. Neither has the real impact of information poverty on the lives of individuals and societies been measured or determined.

Very little research has been done on the moral concerns raised by this form of poverty. Most publications that address the moral issues focus on specific concerns such as access to information or the freedom of expression. There is a lack of research that focuses specifically on social justice and information poverty taking into account its complexity and its multi dimensional causes.

1.5 The purpose and contribution of this study

The purpose and contribution of this study is directly linked to the current limitations and shortcomings of the current research on the relationship between information poverty and social justice.

As I have indicated, my main motivation behind writing this thesis is my concern that this kind of poverty affects the lives of billions of people on a daily basis. As such, it should be on the world's moral agenda of social responsibility. It is indeed a moral imperative that we construct the new emerging information and knowledge society on sound and fair moral principles.

For information poverty to be an item on the world's moral agenda requires that we have a very clear understanding of what information poverty is. In our philosophical traditions, spanning thousands of years, we have deliberated extensively on social justice and the notion of poverty, but we

have done very little to fully understand this form of poverty and its moral concerns.

The main aim of my study is twofold. Firstly to do an in-depth study of the question: 'What is information poverty?' I will attempt to formulate a standardised description of information poverty and also to develop a clearer understanding of the dynamics of the field. These include an understanding of its complexities and the variety of reasons contributing to such a condition. The second aim builds on the first one, namely to thoroughly understand the moral concerns and challenges associated with this from of poverty. In addressing these issues I will propose a moral framework, based on social justice, which those involved in policy formulations and practical applications of policies regarding information poverty can use as a guide.

This study is therefore a modest but important attempt, not only to make a valuable contribution to the growing field of information poverty but also to ensure that information poverty is not only another discussion item on the world's moral agenda for social justice but an action item that implies application and implementation that can change the lives of people.

1.6 Chapter division

To respond to the central statement of the problem, I organized the chapters in this thesis according to the stated sub-problems. I structured the chapters in the following sequence:

Chapter one
In this chapter I discuss the background of this study and formulate the central statement of the problem and associated sub-problems. I describe the research methodology used as well as the limitations and short falls of current research on information poverty and social justice. Following from this, I explain the contribution of this study to the field of information poverty and define the purpose of the study. The terminology and acronyms used in the thesis are also addressed in this chapter.

Chapter two
In this chapter I explain the notion of poverty concentrating on its complexity and its multi-dimensional aspects. I also elaborate on the question why poverty is a matter of moral concern.

Chapter three
This chapter focuses on information as a concept. I standarise the use of terminology and differentiate between data, information and knowledge. Based on my own description of information I identify different characteristics of information. I also illustrate, based on the identified characteristics, the relationship between information and poverty.

Chapter four
In this chapter I expand on the content of chapters 2 and 3 to answer the sub-problem: "What is information poverty"? Based on the notion of an ideal information rich society, I define information poverty. I focus specifically on the factors contribution to information poverty and illustrate its complex and multidimensional nature.

Chapter 5
In this chapter I attempt to answer the question why information poverty is a serious moral problem. In using the arguments discussed in Chapter 4, I illustrate the main moral concerns associated with information poverty and illustrate why it should be addressed. I then argue that social justice and human rights can function as two universal acceptable norms that can be used as moral tools to address these moral concerns. An in-depth discussion on both moral concepts follows, and I illustrate how both social justice and human rights can be applied to the moral concerns that I have raised.

Chapter 6
Chapter 6 focuses on the practical application of both social justice and human rights to address the moral challenges facing information poverty. I distinguish 8 different moral guidelines and illustrate, by means of practical examples how social justice and human rights can be applied to successfully address the moral challenges posed by information poverty.

Chapter 7
In this chapter I round off my thesis and summarise my main findings.

1.7 Definitions and terminology

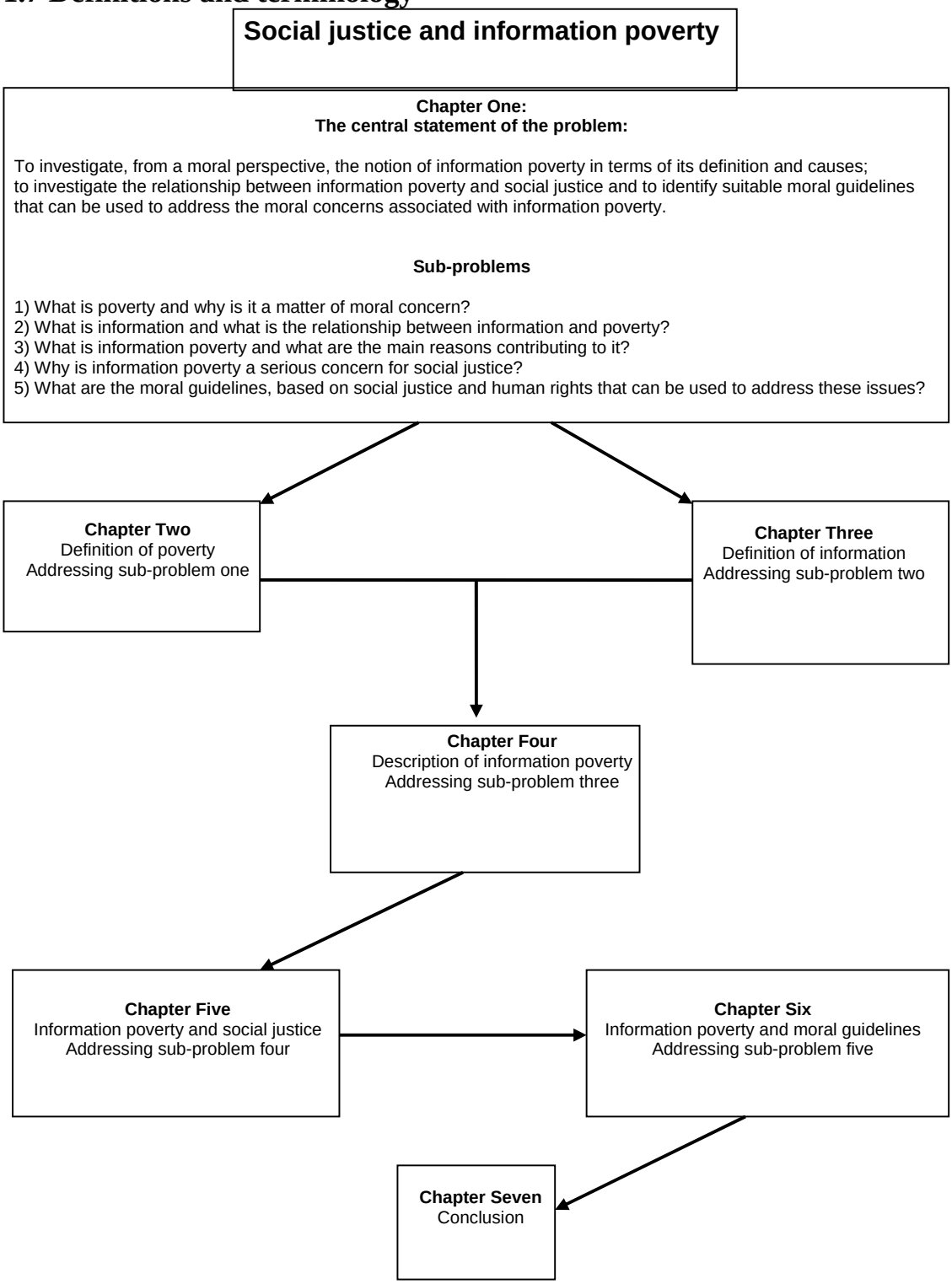

Figure 1: Outline of thesis

1.8 Clarification of concepts

Ethics
Ethics is a branch of philosophy that deals with human conduct and character. As an academic discipline it is divided into descriptive, normative and meta-ethics. Descriptive ethics focuses on the description of the ethical behaviour of people without any normative prescriptions. Meta-ethics focuses on issues such as the origin of ethics, and definitions of moral concepts such as "good". Prescriptive ethics investigates ethical problems from a normative perspective. The main aim of normative ethics is making value judgements and formulating ethical guidelines for individuals, professions, and society (Johnson, 2000). This study on information poverty is done from a normative perspective and suggested guidelines are formulated to address moral concerns related to information poverty.

Ethical relativism
Ethical relativism takes as its claim that ethical reasoning is relative and determined by people, cultures, time and contexts. There is a negative claim and a positive claim. The negative claim emphasises the relativity of moral reasoning – for example, it denies universal norms. Ethical relativism also claims some certainties – in other words it makes some positive claims of which the most famous is that what is "right and wrong is relative" (Johnson, 2000:30).

Information and communication technologies
Preston (2003:35) defines modern ICT as "the cluster or interrelated systems of technological innovations in the fields of microelectronics, computing, electronic communications including broadcasting and the Internet".

Information and knowledge societies
An information and knowledge society can be defined as a society that operates within the paradigm of the economics of information. It values human capital as the prime input to production and innovation. An information and knowledge society is well connected via modern ICTs to the dematerialised economy, and has access to relevant and usable information. A highly sophisticated physical infrastructure underpins this economic model and allows the delivery of the material objects that are accessed and manipulated in the dematerialized world of modern ICTs (Britz, *et al.*, 2006: 28).

Abbreviations

ICT	Information and communication technology
R & D	Research and development
NEPAD	New Plan for Africa's Development
ACC	Administrative Committee on Coordination
ACC	the Administrative Committee on Coordination
AEJP	African eJournals Project
AGORA	Global Online Research in Agriculture
AISI	African Information Society Initiative
AJOL	African Journals Online project
ALA	American Library Association
ALMA	African Language Material Archive
ANC	African National Congress
AU	African Union
CAMP	Co-operative Africana Microfilm Project
CAORC	Council of American Overseas Research Centers
DMCA	Digital Copyright Millennium Act
DRM	Digital Right Management
ECA	Economic Commission for Africa
EU	European Union
GDP	Gross Domestic Product
HINARI	Health InterNetwork Access to Research Initiative
ICT	information and communication technologies
IFLA	International Federation of Library Associations and Institutions
IIPA	International Intellectual Property Alliance
INASP	International Network for the Availability of Scientific Publications
IOM	International Organisation for Migration
IPC	International Patent Classification
IPR	Intellectual property rights
ISP	Internet service provider
ITU	International Telecommunication Union
NEPAD	New Plan for Africa's Development
NICI	National Information and Communication Infrastructures
OECD	The Organisation for Economic Co-operation and Development
PERI	Programme for the Enhancement of Research Information

R & D	Research and development
RSF	Reporters without borders
SADC	The Southern African Development Community
SANSA	South African Network of Skills Abroad
SCOLMA	Standing Committee on Library Materials on Africa
SECI	Socialisation, Externalisation, Combination, Internalisation
TKDL	Traditional Knowledge Digital Library
TOTKEN	Transfer of Knowledge through Expatriate Networks
TRIPS	Trade Related Aspects of Intellectual Property Rights
UDHR	Universal Declaration of Human Rights
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UNESCO	United Nations' Educational, Scientific and Cultural Organization
WARA	West African Research Association
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WSIS	World Summit on the Information Society
WTO	World Trade Organization

CHAPTER 2

DEFINITION OF POVERTY

2.1 General introduction and objective of chapter

For a meaningful analysis of the problem of information poverty from a socio-ethical perspective, one should firstly examine the concept of poverty and its moral impact on society. This then, in a nutshell, describes the objective of Chapter 2.

I have arranged the chapter as follows. The first section focuses on the meaning of poverty. In addition to dictionary definitions, I examined popular language usage to describe poverty. The relationship between poverty and wealth is then analysed. Next, I described the various forms and levels in which poverty is manifested. The various causes of poverty are addressed, together with ways in which poverty can be measured. Following this, I examined the effects of poverty on society. Finally, I considered the relationship between morality and poverty. These discussions allow for examining the relationship between social justice and information poverty, which I will discuss in subsequent chapters. In conclusion, I outlined a number of observations.

2.2 The meaning of poverty

What is the meaning of the terms “poverty” and “poor”? Generally speaking, these terms are used in different ways and contexts. They are primarily used to indicate the economic and social status of people. People who earn a low income are poor and live in poor areas. When one says: “That poor person”, poverty has the added connotation of pity, inferiority and subservience. For this reason, according to Adcock (1997:208), less affluent people dislike being referred to as “poor”.

Poverty is furthermore the direct opposite of wealth. Wealth is generally linked to concepts such as abundance, status and high quality.

2.2.1 Standard definition and etymological roots

Etymologically the term poverty comes from the Latin *pauper/paupertas*. In English poverty has been in use since the 12th century and is directly derived from the French word *poverté*. It has a number of meanings, among others: not rich; subservient; inferior; to be looked down on; cheap; to lose possessions (*Oxford Latin Dictionary*, 1976:1350; *Webster's Dictionary*, 2000).

In some dictionaries poverty is described as follows: "The state of one with insufficient resources" (Webster Online, 2002). "The lacking of material possessions; having little or no means to support oneself; needy, lack of means of subsistence" (*Webster's New Twentieth Century Dictionary of the English Language*, 1977:1400, 1411). "An insufficiency of the material necessities of life" (*Encyclopaedia Britannica* 1969, vol. 18:392). As early as the 19th century, poverty was associated with the pressure to obtain basic means of survival. In *The Century Dictionary: An Encyclopedic Lexicon of the English Language* of 1890 (vol. 4: 4660) poverty is described as "need or scarcity of means of subsistence; needy circumstances; indigence; penury".

Based on these definitions, the most common and generally accepted description used internationally for poverty is that condition of life where the majority of people lack sufficient resources to supply their basic needs for survival. Poverty furthermore does not only refer to the presence or absence of resources; it is also expressed in the inability to produce these resources (May 1998; Wilson & Ramphele 1989; Lötter, 2000; Leon & Walt 2001; World Bank 1999 & 2002; United Nations Human Development Report 1999; OED Online, 2006).

From this discussion of poverty it is clear that it is primarily linked to people's inability to provide for their basic needs. In other words, it indicates the socio-economic status of people and communities, together with its impact on just about every aspect of their lives.

2.2.2 Other usages

The meaning and usage of the word "poor" extend beyond the socio-economic sphere. Our empathy for a person is sometimes expressed by using the word. As I have pointed out earlier, one could, for example, refer to "…that poor person whose father passed away". Poor as descriptive term is

also applied to nature and other objects. A well-known example is to refer to soil which is not very fertile as “poor soil”.

In some indigenous cultures the concept of poverty is not linked to economic poverty (e.g. the scarcity of consumer goods), but is rather used in the context of isolation in respect of social relations (Mander, 1991:252). Sahlins, in his book *Stone Age Economics* (1972), as cited by Mander (1991:253), for instance has the following comment about poverty among the Khoi people: “Poverty is not a certain amount of goods, nor is it just a relation between means and ends; above all it is a relationship between people. Poverty is a social status….”. This view of poverty has a clear non-economic status attached to it.

2.3 Different forms of poverty

Although poverty is a fairly standard term for that condition of life in which the majority of people do not have sufficient resources to provide for their basic survival needs, it can be expressed in different ways. I discuss some of the faces of poverty in the following paragraphs.

2.3.1 Absolute poverty

According to the United Nations report on poverty (*1998 Report on overcoming human poverty*), absolute poverty is the condition in which an individual, family or group of people have no or very few resources for supplying their daily needs. In other words, it indicates a specific degree of poverty. Beisner (1995) explains that absolute poverty among others indicates people who do not have jobs or are unable to work. Lacking any form of income, such people are completely dependent on others for their daily needs.

2.3.2 Subsistence poverty

Subsistence poverty can also be regarded as a degree of poverty. It relates to people who have some form of income and/or resources which can be used to supply their most basic needs. However, their standard of living is much lower than that of the average person in a society. According to Beisner (1995), people exposed to subsistence poverty do have some disposable income, but are unable to save money or other provisions. People who live at the level of subsistence poverty run a serious risk of being reduced to

absolute poverty when an emergency strikes, for example, natural disasters or loss of employment.

2.3.3 Chronic poverty

Chronic poverty as a type of poverty is primarily collective. It normally relates to a family or a group of people (Lötter, 2000:119). This form of poverty develops over a long period, mostly over generations, and those who are trapped in it cannot escape easily.

An example of chronic poverty can be found in the lives of a large number of rural black people in South Africa. In most of these cases, the poverty is passed on from one generation to another. Because the new generation, in a manner of speaking, inherits the poverty from the previous one, and does not create new opportunities, the level of intensity of the poverty can increase in some cases. This could be regarded as a form of "terminal poverty".

2.3.4 Transitional poverty

Another form of poverty is transitional poverty. This mainly occurs in cases where there is economic instability. It is mostly an unexpected form of poverty, and can affect anyone. May (1998:6,8) links it to a negative outcome of change; it is normally manifested in cases where people unexpectedly lose their jobs. An example is the way in which thousands lost their jobs after the terrorist attacks on the United States on 11 September 2001. This particularly affected airline workers worldwide.

Transitional poverty brought about by unforeseen loss of employment and income can be exacerbated where there is insufficient unemployment insurance or where the worker has not made provision for emergencies. However, it is regarded as transitional poverty because unemployed people can find jobs again after some time. This type of poverty is mostly found in countries where employment opportunities do exist.

2.3.5 Spatial poverty

May and Rogerson (1998:208) distinguish spatial poverty. They argue that poverty and a tendency to poverty can be linked to the place where people live as well as their geographic area. For instance, they point out that people who lack access to transport find it more difficult to find jobs than do people who have such access. People wish to live close to public transport in order

to reach their workplaces. The result is an increase in migrant labour and urbanisation. However, the migration to urban areas has led to an increase in poverty. According to the World Bank's poverty report (1996) the majority of the world's poor communities live in urban areas.

A research report by Sachs, Mellinger and Gallup (2001), published in *Scientific American*, further indicated that poverty and the distribution of wealth largely correlated with the geographic location of countries. This explains the divide between the mostly affluent North and the poor South.

2.3.6 Susceptibility poverty

In his discussion of poverty Lötter (2000:118) refers to instances where people have a particular susceptibility for poverty. This mainly relates to cases where people have specific skills within their own culture and technology, but are unable to transfer and/or use them in new, changing circumstances. A typical example of this type of poverty would be a well-trained person who struggles to find employment in the information technology-driven economy owing to an inability to master this technology.

Mander (1991) has done an in-depth study of the impact of Western technology on Native Americans. One of his main findings was that exposure to modern Western technologies has contributed to the impoverishment of Native Americans.

2.4 Different levels of poverty

Three levels of poverty can be distinguished, *viz*. individual, family/group and regional/community poverty. May (1998:5) points out that the intensity and impact of poverty are both determined by the level of poverty. The three levels are briefly discussed below.

2.4.1 Individual poverty

Individual poverty is related to cases where isolated individuals in a community suffer from some kind of poverty. In such isolated cases, the impact of the poverty is mostly limited to the life of the individual concerned, and the community also finds it easier to become involved by rendering assistance.

2.4.2 Family/Group poverty

Family and group poverty occur where the main breadwinner(s) of a family or group of people are without income due to amongst others a loss of employment, death or serious illness.

The impact of this type of poverty is greater since it mostly affects larger groups or families. When an extended family structure is affected, it often impacts on a number of children and elderly people, since two or three generations of a family sometimes live together. In most cases, there is no one in such family groups who can take over the role of generating income.

The effect of poverty at this level is exacerbated by the fact that the economic organisation of these extended family structures, which to a large extent formed the system which provided social protection, has in most cases disintegrated (Lötter, 2000: 120).

2.4.3 Regional and community poverty

Regional and community poverty is generally used to describe a particular community or region where most of the people live in poverty. The Orange Farm region in Gauteng, South Africa, is an example of an impoverished community. Most of the inhabitants live below the breadline and there is a high unemployment rate. In addition, there is a lack of basic services, people have little say in political decision-making on issues affecting their futures and they generally live in unhygienic conditions. Another characteristic of community poverty is overpopulation, without the infrastructure required for the basic needs of these people (Lötter, 2000).

2.5 Causes of poverty

Pinpointing the causes of poverty is crucial, since these causes provide a point of departure when seeking possible solutions for poverty. Because poverty is a complex and multidimensional phenomenon, its causes cannot be reduced to a single one or a few causes. It is also important to understand and interpret the causes of poverty within specific socio-cultural and economic-political contexts.

Organisations, research bodies and scientists studying the causes of poverty are generally found in the economic, social and medical science sectors (Lötter, 2000:119, World Bank, 2002 and Wilson & Ramphele, 1989:14).

Their studies utilise various scientific methods, both quantitative and qualitative. The World Bank (2002) in particular has in recent years focused strongly on participative research, to determine how poor people themselves feel about poverty and what they regard as the causes of and solutions for poverty.

Based on the research done by May (1998), the World Bank (1998, 2002), the United Nations (*Human Development Report*, 1999), Wilson and Ramphele (1989), Adcock (1997), Sachs *et al.* (2001) and Lötter (2000), a number of causes of poverty can be identified. These are:

- Economic systems.
- Political systems.
- Geographic distribution.
- Gender issues.
- Forms of rendering assistance.
- Extraordinary circumstances.
- Individual causes.
- Poverty as a cause of poverty.

I will describe these in the following paragraphs.

2.5.1 Economic systems as cause of poverty

When considering the role of economic systems in creating poverty, the following aspects are, among others, relevant:

- The way in which economic systems regulate the distribution of products and services in the market. Are they purely based on free market forces or has provision been made for the equitable distribution of collective goods and services? This question is of particular interest to the new paradigm of globalisation and information based economies.
- Is the distribution of wealth in a country fair? To find the answer to this, the *Gini* table is used which measures the distribution of wealth in countries.
- The role of the public and private sectors in regulating economic processes. For instance, is there scope for deregulating economic processes and to what extent is control exercised over the creation of monopolies in the market?

- To what extent does an economic system succeed in creating job opportunities?
- To what extent do economic systems make money and other resources easily accessible to poor people? For instance, do excessively high interest rates apply to poor people?
- What are the spending patterns and priorities of poor people? Do they for instance spend more on cell phones than on basic provisions such as food?
- What is the impact of macro-economic trends such as inflation and recessions on economic growth?
- In recent years the role and impact of globalisation of the world economy on countries and regions are also receiving greater attention. Has globalisation for instance contributed to the creation of greater wealth or have poor countries, which are not part of the global world economy, been further isolated and impoverished?

2.5.2 Political systems as cause of poverty

Apart from economic causes, political systems can certainly be regarded as one of the main causes of poverty. Political factors that should be taken into account that can contribute to poverty include the following:

- The type of political system. For instance, is it repressive and is the majority of the population excluded from political and economic decision-making?
- Are basic services such as health, energy, telecommunications and housing provided to poor communities and if so, what is the quality of the services rendered?
- Closely related to the previous question is the question of whether poor communities are given the opportunity of participating in the decision-making processes that affect their future. Do poor communities have the economic and political power to change and/or influence political decision-making processes? For instance, how much say do poor communities have in determining the priorities of the basic services that have to be provided to them?
- Is legislation such that poverty is combated? This includes the extent to which workers are protected (labour laws, scope given to unions) as well as the political will of a government to provide general social security for all citizens (state pensions, health services).

- Another important cause of poverty can be found in ineffective government and political corruption.

2.5.3 Geographic distribution as cause of poverty

As early as the 18th century the economist Adam Smith pointed out that wealth is not only determined by the application of the free-market system, but also by the geographic location of a country. As I have pointed out in section 2.3.5, geographic location (see the report of Sachs *et al.*, 2001) is regarded as one of the primary causes of poverty. Research into this area is mainly based on macro-economic principles and geography. Some of the variables to be examined are:

- Is there access to harbours and if so, is such access cost-effective?
- To what extent are people excluded from meaningful participation on the internet due to their location as well as physical address. There is growing concern that the internet is shrinking due to geographical exclusion of people.
- Are there large rivers that can be used for the effective transportation of people and products?
- What are the nature and quality of the soil and are products being cultivated that are suitable for the climate?
- Do natural disasters such as earthquakes and floods occur regularly and what is their impact on the economy?
- Is there an abundance of natural raw materials?

2.5.4 Gender as cause of poverty

Discrimination (particularly economic discrimination) against a particular gender also leads to poverty. Studies indicate that women in particular are victims of discrimination (May *et al.*, 1998:48-80; Adcock 1997:135 and World Bank, 2002). Studies of the impact of gender discrimination focus on the following aspects, among others:

- The role of culture and politics in the suppression of a gender.
- Is there discrimination in allocation of information related jobs in the new information and knowledge society?
- The way in which such suppression is exercised. For instance, are women prevented from working or studying, or even prohibited to do so? Are they paid less for equal work?

- Does gender discrimination occur in households? In a patriarchal system, for instance, are women excluded from economic decision-making at home?

2.5.5 Forms of rendering assistance as cause of poverty

The ways in which assistance is rendered to poor communities as well as their reaction to such aid, lead to the question of whether rendering assistance could actually perpetuate poverty. Factors that support poverty can be deduced from the answers to the following questions:

- Is the assistance of such a nature that poor people are taught to be self-sufficient or does it increase their dependence on those rendering the assistance?
- What expectations does assistance create among the poor? For instance, could poor people come to the conclusion that those rendering aid are now duty bound to look after them and that they themselves need not contribute to alleviating their own poverty?

2.5.6 Extraordinary circumstances as cause of poverty

Poverty can also be caused by exceptional circumstances such as natural disasters, drought, epidemics, war and violence.

Studies are normally made of the economic impact of such exceptional circumstances on people's quality of life. The effect of violence and criminality on the economic growth rate of a country can, for instance, be measured.

2.5.7 Individual as cause of poverty

Poverty is not only caused by exceptional circumstances or by economic or political decision-making. Poverty can sometimes even be caused by the individual him/herself and the following factors play a role:

- What are the level and standard of education of the individual and what effect does this have on poverty?
- Do variables such as a lack of talent and abilities contribute to poverty?
- Is the will to work lacking?
- What is the community's attitude toward individuals who are responsible for their own poverty?

- In cases where poverty is caused by the individuals themselves, questions should also be asked about the role of culture and the socio-political context within which such individuals grew up.

2.5.8 Poverty leads to further poverty

Research is also being done about the extent to which poverty is carried over from one generation to another. Research questions include:

- Are children more inclined to follow the example of parents who do not work?
- Does the lack of funds in one generation prevent the next generation from being able to afford formal education and as a result cause them to enter the career market at a disadvantage?
- Do historical conditions such as slavery or other forms of suppression contribute to a cycle of poverty from which people find it hard to break free?

2.6 Measuring poverty

It is evident that poverty is a complex phenomenon and that its causes are multi-dimensional. Measuring poverty is accordingly also problematic. On the one hand it is possible to measure poverty statistically and quantitatively. The World Bank, for instance, uses statistical methods and measures poverty by means of a poverty line. Such a poverty line divides rich and poor and is normally based on a minimum standard of living expressed in the buying power of individuals. In the World Bank's (1998) poverty line people live below $1 (US) a day. However, such statistical profiles only partially reflect poverty.

Poverty also has a qualitative, non-statistical element which is among other things expressed in human experiences (Adcock, 1997:128). It might best be described in the words of a citizen of Ghana: "Poverty is like heat: you cannot see it, you can only feel it: so to know poverty, you have to go through it" (*Can African claim the twenty first century*: 2000:85). Poverty therefore extends beyond the quantification of income, possessions and the lack of basic services to cover how people feel about and experience their poverty.

To obtain the full picture of poverty, it is essential to measure it quantitatively as well as qualitatively. Based on the analysis done by Lötter

(2000:110-118) I distinguish the following standard qualitative and quantitative measures of poverty.

2.6.1 Quantitative measures

2.6.1.1 Income and work

Income comprises more than the monthly income measured in terms of money. Other sources of income are taken into account, such as land which is possessed and the trade of products. Measuring income is problematic. It is difficult to find international comparisons of disposable income. According to Wilson and Ramphele (1989:54, 71) disposable income should be measured in terms of the value and purchasing power of money in a particular country. Lötter (2000:108) further points out that measurement of income does not always take into account expenses and ways of spending. People with an income above the so-called poverty line can, for example, live in poverty if money is spent on the wrong priorities or if there are essential medical expenses.

When work is studied as a variable, one should take into consideration the number of people who have permanent or non-permanent work and the benefits (pension, medical). The number of unemployed persons is also measured, specifically the number of unemployed persons in a particular household (May, 1998:45, 80). It is also important to note how long someone has been unemployed and whether alternative employment opportunities exist.

Apart from income and work, poverty is sometimes also measured against the spending patterns of poor people, for instance how resources are prioritised in poor households and on what poor communities in general spend their money.

2.6.1.2 Health

Health is one of the most important criteria for measuring poverty (Wilson & Ramphele, 1989:99-120). In principle it relates to a person's ability to care for him/herself. Some of the variables that play a role are the life expectancy of people, the number of child deaths below the age of five years, child malnutrition, the diet followed by communities, access to water and the quality of the water, typical illnesses presenting in certain regions

(e.g. cholera and malaria), as well as the costs and affordability of medical services.

Africa, which is regarded as the poorest continent, has the highest percentage of deaths among children below the age of five years. According to statistics from the World Bank 157 children out of every 1000 die under the age of five years in Africa. In Asia the ratio is 53 out of every 1000 children and in developed countries the ratio is 9 out of every 1000 children (*Can Africa claim the twenty first century*, 2000:86).

2.6.1.3 Access to services

This level of poverty is measured in terms of the ability/inability to access basic services in a community (Wilson & Ramphele, 1989:62-5). These services include energy supplies, sanitation, libraries, telecommunications facilities, postal services, protection services and social security services such as old-age homes. In some surveys the quality and cost of services are also taken into consideration if they are indeed provided. The measurement of the costs of energy needed to prepare food is particularly important.

2.6.1.4 Accommodation and clothing

Accommodation and clothing is another variable used to measure poverty. Among other things the number of people living in a specific dwelling is taken into account, as well as the size of dwellings (e.g. the number of persons per room), the quality of the dwellings and whether the dwellings are owned or rented (May, *et al.*, 1998:43; Wilson & Ramphele, 1989:123-130).

Clothing as a variable is specifically related to whether people are capable of dressing according to weather conditions – for instance, whether they have enough clothes for winter.

2.6.1.5 Education

Education can be regarded as one of the core criteria for the measurement of poverty. The focus is not only on the education of children, but also on the nature and quality of adult education. Furthermore, attention is given to aspects such as the period of time during which someone received an education, the quality and level of training, literacy levels and whether people were trained for specific professions. Another important variable to

consider is how much governments have budgeted for education. Linked to this is the amount parents have to pay out of their own pockets for the education of their children. In the following chapters I will illustrate the close relationship between the lack of education and information poverty.

2.6.2 Qualitative measures

2.6.2.1 Self-respect and dignity

Self-respect and dignity are moral concepts and are related to determining how a person respects him/herself (Lötter, 2000:113). Human dignity among other things reflects a poor person's confidence in him/herself. Together with someone's own opinion of him/herself, this measurement also considers the opinion of such a person which is held by other people and communities. Poor people lose their self-respect more easily because they do not feel fully part of the community. Poor people are more exposed to the public view because of their greater economic dependence. This loss of human dignity is often accompanied by a feeling of powerlessness.

2.6.2.2 Insecurity

Moor (2001) correctly indicates that the need for security is one of the core values of any community. Where this is affected, the heart of a community is threatened. Poor people are often more exposed to unsafe environments (May, 1998:41, 54). This does not just relate to robbery and murders, but also to domestic violence and family abuse. According to Wilson and Ramphele (1989:159-60), domestic violence and abuse in poor households are often caused by alcohol abuse.

2.6.2.3 Lack of participation in the lifestyle of the community

In the era of electronic media and marketing poor people are much more exposed to new and expensive products. However, the problem is that these products cannot be acquired. They are for the enjoyment of the "rich" only. The experiences of poor people in respect of this disparity in disclosure (marketing) and possession (for the rich only) are sometimes measured (Lötter, 2000:114).

In some cases extreme social pressure is placed on poor people to participate in this lifestyle. This can result in miss-spending of scarce money or cause poor people to withdraw totally from social life. As a consequence, poor people can react with anger or reproach against the community. This

disparity is sometimes also seen as a justification for stealing from the rich. According to Lötter (2000:115), however, most poor people accept their lot over time.

2.6.2.4 Distrust of society

Finally, poverty can be measured in terms of how much poor people trust or distrust their government and organisations that provide basic services. It has already been indicated that poor people often distrust their governments and other political institutions. The primary reason for this is that poor people have no real political clout and that they furthermore believe that politicians do dot really have their interests at heart. This is why much greater trust is placed in religious and indigenous organisations. (May, 1998)

2.7 Results and impact of poverty

The above discussion of poverty makes it clear that it has an enormous impact on people and on society as a whole. People suffer from hunger, children die owing to malnutrition, crime increases and the development of communities is hampered. May *et al.*, (1998:44) add that many poor people suffer from constant emotional stress because they are in most cases engaged in a daily struggle to survive.

Wilson and Ramphele (1989:175) further found in their research that poverty causes families to fall apart. These authors have found much evidence of especially black families (women) in rural areas in South Africa whose family lives were destroyed by the men's departure to the cities to seek work. In many cases, the men never returned and their families that remained behind never heard from them again.

Children are also seriously affected by poverty. In most cases, children suffer from malnutrition and are therefore more vulnerable to illnesses and early death. The disintegration of families also creates unstable environments for children. This in turn leads to child prostitution, sexual abuse and drug and alcohol abuse (May *et al.*, 1998:32-33). The lack of recreation and sports facilities for children in poor areas also contribute to an increase in these social evils.

Poverty has an equally harsh impact on women. In South Africa its effects are particularly severe for black women, widows, divorced and unemployed

women. It is aggravated in cases where cultural, political and economic discrimination against women is found. (Wilson & Ramphele, 1989:175).

Elderly people also cannot escape the effects of poverty, particularly in cases where there is no social provision for older people who can no longer work. The emphasis is on the role of the state together with the responsibility of social structures (e.g. families) to care for their older relatives.

Wilson and Ramphele (1989:176) point out that the loss of employment by a person close to retirement age can have serious implications for his/her own life and that of his/her family. This is especially true of people who are retrenched at the age of 50-55 years and who are unable to find work again. Normally such a person would have earned a fairly good salary and had financial commitments, for instance providing for the education of children.

Lastly, disabled people in poor communities are also seriously affected, because there is seldom any provision for disabled persons. This is not only applicable to poor areas.

2.8 Morality and poverty

This analysis of poverty and specifically of its results makes it clear that billions of people worldwide are affected on a daily basis (World Bank, 1999/2000). Poverty affects the lives of people. It gives rise to practical questions such as: Where will my next meal come from? How can I feed my child? Where do I take my sick child? Where can I sleep tonight where I will be protected from the cold?

Poverty furthermore causes an imbalance between power and dependence. Poor people have in most cases no or almost no possessions or property and for this reason very little power or control over their lives and the necessities for their basic needs. The power and control is largely in the hands of the haves, and the have-nots are dependent on them. This imbalance leads to the abuse of power (cheap labour, exploitation etc.) and feelings of fear, anger and helpless acceptance by poor people. It means that poor people are not really able to exercise their internationally recognized human rights and in the process the core of their human dignity is seriously affected.

It is thus clear that poverty and its results have a significant moral dimension which directly impacts on the life and human dignity of poor people. This

means that society cannot evade the issue of its moral responsibility toward poor people.

In following Rawls (1971) I strongly argue that part of this moral responsibility is the need for in-depth attention to creating a social justice which would among other things provide for a more equitable distribution of wealth between people, implementation of fair and just remuneration practices and punitive justice in cases where poor people are exploited by the powerful. Social justice is also expressed in equal treatment of all people – rich or poor – and the recognition and guarantee of human freedom. This expression is articulated within different contexts and cultures. It is clear, however, that poverty essentially affects the freedom of poor people because in most cases resources (money, food, housing) are needed to express freedom. Most poor people do not have such resources.

I am convinced that the modern information and knowledge society needs to be confronted by the question of the extent to which the problem of poverty is addressed by existing political, economic and social structures. One can indeed ask the question: Do these structures comply with the norms of social justice, freedom and equality?

2.9 Conclusion

In the light of the analysis of poverty, I argued that poverty is a complex phenomenon and that the causes of poverty are multidimensional. It further means that there is no single or just a few solutions for the problem.

Secondly, poverty is an individual problem within a societal context which should rather be understood and interpreted within a economic-political and socio-cultural framework. The “blame” for poverty can rarely be placed on individuals. Poverty is also no respecter of persons.

Thirdly, the impact of poverty on people and the environment is enormous. It does not only affect the quality of life of billions of people, but in many cases their dignity and humanness. For this reason poverty and its implications have a strong moral claim on society.

In Chapter 3 I will discuss the concept of information, in particular the relationship between information and poverty as it has been set out in this

chapter. Chapters 2 and 3 form the framework for Chapter 4 in which I will deliberate on the notion of information poverty in detail.

CHAPTER 3

DEFINITION OF INFORMATION

3.1 General introduction and purpose of chapter

In Chapter 2 I pointed out that poverty is a multidimensional concept which manifests itself in various fields and in different levels of intensity. In the introductory chapter I have also shown that information poverty is one of the manifestations of poverty. To fully understand this type of poverty and its moral implications, it is important to understand both the concept of poverty as described in Chapter 2 and the concept of information as well as the relationship between these two concepts. The purpose of Chapter 3 is to analyse the nature of information.

The chapter is structured as follows: firstly I have sketched the etymological development of the term information from a diachronic perspective. From this I developed a working definition. With the definition as point of departure, I will then discuss various scientific approaches to information. Based on the knowledge approach, which I prefer, I present my own approach to the concept of information. This approach forms the framework for consistent use of the concept of information and the way in which it is applied to information poverty in this thesis. Within the context of my own approach, a discussion of the various characteristics of information follows. Finally, I highlight the implications of these characteristics in respect of poverty; and these will then form the basis of the discussion of information poverty in Chapter 4.

3.2 A diachronic approach to the definition of information

Various experts in the fields of among others linguistics, information science, computer science and communication have attempted to arrive at a standard definition of information. Despite their efforts, information remains vague, and confusion continues to reign. Collier (1993:37-41) correctly calls it a “fuzzy field”. Geldenhuys (1993:11) adds that in the legal field, information has been called an amorphous concept which defies definition.

One approach to examining information is from a diachronic perspective. The linguist de Saussure (1960:80-81) describes such an approach as “…the study of language from the point of view of its roots over a period of time”.

The focus is in other words on the etymological development of the concept as well as the way in which it is used today. I base my discussion of information on this approach.

In the Afrikaans language, two terms are used which reflect approximately the same content. These terms are *inligting* and *informasie*. A brief analysis of both follows. Current usage, as reflected in dictionaries (see *Oxford English Dictionary*, 1999, *The Reader's Digest Oxford Wordfinder*, 1993 and the *Verklarende Handwoordeboek van die Afrikaanse Taal (HAT)*, 1987) regards the concept of information as a process in which something is communicated and/or someone is informed. The concept is therefore implicitly linked to a particular action and also refers to the content which is communicated. The latter meaning (content) is defined as that which informs someone.

Etymologically the word information comes from the Latin root *forma* which means form, appearance or figure. The noun is *informatio* which indicates an idea or concept. The infinitive verb is *informare*, which means "to form an idea of [something]" (*Oxford Latin Dictionary*, 1968). In other words, a literal as well as figurative meaning can be distinguished. The literal meaning is to give form to something, and the figurative to form an idea and to conceptualise something.

Most European languages derive their words for information from the Latin. The most common examples are *information* in English and French, and the German and Dutch words *information* and *informatie*. The Afrikaans word *informasie* can be traced via the Dutch to its Latin origins.

On the other hand the word *inligting*, as used in the Afrikaans language, is derived from the Dutch word *inlichting* which has the following variations in meaning: information, explanation, illustration and elucidation. In the *Dutch Language Synonyms Dictionary* (1991) the words *inlichting* and *informatie* are given as synonyms, but in colloquial language the word *informatie* is preferred and in some cases the words are regarded as different concepts. *Informatie* is mostly seen as the content that is communicated and *inlichting* as the explanation or report of something. One would thus, for example, find an *inlichtingcentrum* where *informatie* can be obtained.

The word *inlichting*, with the meaning given above, dates from the nineteenth century and has its origins in the medieval word *inluchten*, which

had a strong religious connotation as it referred to divine light irradiating or penetrating the human spirit. The origins of this word can be found in the Latin *lux,* related to *lumen,* which means light, lamp or torch. The infinitive is *illuminare* which means "to impart brightness or light" (Van Dale, 1992:321).

Based on this etymological description together with current usage of the word information, the concept of information will be regarded as both a process and a product. As process "to inform" it means the following:

- It is an action
- whereby content is transferred/communicated
- by means of a specific medium
- with the purpose of giving meaning.

The product of this informational action is information.

3.3 The concepts of information and data

When analysing the concept of information, it is also relevant to indicate what is understood under the concept of *data* (with singular *datum*) and how data is used in this thesis. In linguistic and technical dictionaries the concept of data is given the following meanings: as a given fact; that which is given; as synonym of information; as the computerised processing of information and as the basic element from which information is compiled[1]. In other words, data as a concept is generally used in the field of technology.

In the context of these definitions of data it becomes clear that the meanings of data and information are closely related insofar as both refer to the content of that which is communicated. To allow standardisation and avoid confusion I have chosen to give preference to the word information throughout the thesis. The only context in this study where I will use the concept of data will be in reference to the electronic communication (mostly in binary format) of signals between computers. This can be regarded as "data transmission" although it is basically still the transferring of information, but without direct human intervention. The term data is used in

[1] The following dictionaries were consulted: *Woordeboek van die Afrikaanse taal* (1985); *New Websters Dictionary of English Language* (1985); *The Oxford English Dictionary* (2nd edition, 1989); *Dictionary of computers, data processing and telecommunications* (J.M. Rosenberg, 1984) and *Computer Dictionary and Handbook* (Sippl & Sippl, 1980).

this context because of its general usage in the computer and legal sectors. An example is a phrase such as “Data Protection Acts” where data actually refers to information in electronic formats.

I therefore do not share the view that data refers to unprocessed pieces of information. This is because “unprocessed pieces of information” is a very subjective idea. What one person regards as data (as unprocessed pieces of information) may be fully understandable information to the next person.

I also disagree with the distinction between data and information as explained by Geldenhuys (1993:63), according to whom data can in some cases not be regarded as information since it cannot be perceived physically. Information (and by implication data as well) which is not physically perceptible (even though it is data on a damaged computer disk – the example referred to by Geldenhuys) in my view remains potential information (Britz, 1996a).

3.4 Some scientific approaches

Particularly in the late fifties and sixties, when information science developed into a subject field in its own right, information as a scientifically demonstrable concept began to be debated. The search for an adequate definition went hand in hand with the debate about what scientific information science really was about. Could one really talk about information science as a science if there were no agreement on the object of study (information)? Authors who focused on these issues include Hayes (1969), Wellisch (1972), Wersig and Neveling (1975), and Belkin and Robertson (1976). More recent research has been done by Introna (1997), who concentrated on the hermeneutic interpretation of information, and Madden (2000), who reexamined the relationships between data, information and knowledge. Most of their arguments are linked to various information and communication theories. The communication theory of Shannon and Weaver (1949) was often used as basis. It is furthermore notable that little was published on the subject in the late eighties and nineties. With the development of knowledge management in the nineties, the meaning of information was once again debated – this time with the emphasis specifically on knowledge and intelligence.

The following two main reasons explain why a uniform and standard definition of information from the point of view of information science has

yet to be found, and why there is such terminological confusion which can hamper the development of information science as subject field (Britz, 1996a):

- The linguistic explanation of the term. This specifically relates to the various dictionary definitions of information, knowledge and data and the different ways in which they are applied.
- The interdisciplinary nature of information science. Wersig and Neveling (1975:128) ascribe the confusion in respect of the concept of information to the influence of other disciplines, such as computer science and mathematics. Each of these sciences holds its own views and applications of information as a concept.

Based on a literature study covering the field of information and in line with a previous study (Britz, 1996a), I propose a classification model regarding the way in which information as concept can be used and applied. This classification model is important because it indicates specific trains of thought about information in specifically the information science field.

3.4.1 Anti-definition approach

In the search for a scientific definition of information some experts are of the opinion that no specific definition of information as a concept is possible. This view is among others supported by Goffman (1970) who is of the opinion that a definition of information is not so crucial in studying information science, since related concepts are studied in information science. Fairthorne (in Wersig & Neveling, 1975:132) regards information as a linguistic term which is used for the sake of convenience without real meaning being given to it.

3.4.2 The ideological approach

In this approach certain ideologically loaded concepts are used to describe information. The most well known example is the Russian author Mikhailov (Wellisch 1972:172) who uses a specifically Marxist terminology in his description of information in which information is *inter alia* referred to as matter and approached from within the systems theory. Wersig and Neveling (1975:131) refer to this as the material approach. Daniël Bell's (1974) and Kingma's (2001) categorisation of information as a commodity can also be regarded as a specifically ideological (capitalist) approach to information.

3.4.3 The user approach

The user approach emphasises the application of information and its effects on users. According to this viewpoint, the real meaning of information is primarily to be found in its use or application. Although there are various versions of this approach, the main emphasis is on the usefulness and application of information in respect of decision-making. Supporters of this view are amongst others Lancaster (1987:6), who defined information as "... that which reduces uncertainty, ... that which assists in decision making", and Davis and Ohlson (1985:235-268), who define the role of information in terms of human decision-making processes. The Newell-Simon model, specifically developed for human problem-solving, often forms the basis for these processes. Whittemore and Yovits (1973:221-231) also support this view by linking information, defined as the reduction of insecurity, to decision-making. Wersig (1975) is another well-known supporter of the view that information from the perspective of information science can best be defined in terms of its effect on the consumer – in what he refers to as the reduction of insecurity.

3.4.4 The process approach

In the process approach information is not viewed as merely part of a process, but also as a process in itself. The reference to the process is thus twofold: firstly the process as it is enacted in the life cycle of information (*viz.* from the creation up to and including the use of information) and secondly the process which takes place when people process information for their use. Supporters of the first type of approach are notably Vickery (1987:9), who regards information from a social perspective as a social process which takes place between the generator and user of information, and Koblitz (1969:120-142), who refers to the information processes as the gathering and organising of information. Neill (1992) is an exponent of the second approach.

3.4.5 The content approach

The content approach supports the linguistic definition of information as being the content of that which is communicated. Supporters of this approach include Diemer (1971:105-113), who coined the concept *informene*, which denotes the content (information) of that which is communicated. One could add the description of Faibisoff and Ely (1976:3) of information as "...a symbol or set of symbols which has the potential of

meaning" in this context. Jedziny (1968) also attempts to link both elements of the linguistic definition of information by explaining it as that which consists of a semantic (content) and physical carrier and which is transferred through different processes. Webster (2002:23-28), describes information as content, but with emphasis on its social impact on society.

3.4.6 The knowledge approach

In what can be called the knowledge approach, information and knowledge are linked on the basis of various emphases. I value this approach as important and will therefore elaborate on it in more depth.

Brillouin (1962:x), Boon (1992:2) and Webster (2002), as representatives of this approach, regard information as the basis or raw material of knowledge. Kochen (1974:62) describes a hierarchical development from data to information to knowledge and finally wisdom. Although Horton (1979:51) does not support such a hierarchy, he does distinguish between data, information and knowledge. Martin (1988:10) supports this line of thought and regards the three ideas as "mutually sustaining elements".

Farradane (1979:13-17) can be regarded as one of the primary exponents of the knowledge approach. He describes information as a knowledge surrogate in spoken or written form. According to his definition, information is an external element or surrogate of knowledge which is communicated by various means. In this regard Farradane is supported by Costello (1961:191-97), who regarded information as knowledge which is communicated.

Farradane therefore argues that the original meaning of knowledge does not lie with the receiver, but with the creator – because the creator knows the intention of his/her original thought. According to Farradane, the receiver in turn processes the information which is received into new knowledge. The implication of this view of Farradane is that information cannot exist without knowledge. The receiver of the information, in transforming it into knowledge, imparts new interpreted knowledge (meaning) to the information.

In the knowledge management field, particular attention is given to knowledge as human cognition which can differ in degrees of intelligence and can be found explicitly as well as implicitly. The distinction between explicit and implicit (tacit) is derived from the work of the Hungarian

philosopher Polanyi, *The Tacit Dimension,* which was first published in 1967. Well-known exponents of this approach include Davenport and Pruzak (1998), Nonaka (1998), Day (2002) and Blair (2002).

This approach is therefore not focused on the user and the effect which information has on the receiver of the information as in the case of the user approach, but on the creator of knowledge, who communicates it to the user in the form of information (direct and indirect). It is important to bear in mind that the receiver of the information (as user of the information) becomes a new knowledge creator in the process of assigning meaning to the information that was received. I will explain this difference in more detail in the next few paragraphs. Emphasis is thus placed on meaning as well as on the hermeneutic process that takes place. This further implies that unused or unapplied information is essentially without meaning. Farradane (1979:14) refers in this context to information which is sterile.

3.5 A personal approach to information

In my view all the various approaches to information described above contain some elements which are relevant for describing information and information poverty. However, I propose an integrated approach, taking as my point of departure the knowledge approach as presented by Farradane. My own approach to information is further based on the philosopher Popper's threefold worldview. Popper sees the world as consisting of three parts, *viz*. reality (first world), reality as experienced by a person (subjective idea – second world) and the presentation (objectification) of reality by means of human symbols, including language and books – third world (Popper, 1972). In the following section I will discuss information within the context of these three worldviews, taking the knowledge approach as point of departure. Following from this I will identify and discuss the main characteristics of information.

Before I discuss the relationship of information to reality (Popper's world one), people (Popper's world two) and other information carriers (Popper's world three), it is important to briefly consider the four basic sources of information for human beings. This will clarify the three identified relationships, which will prove to be very important for the understanding of information poverty (Chapter 4). The sources are:

- Objects in reality – a person may obtain information through sense perception of objects in reality. These can be both concrete and abstract. I can, for example, see a tree or feel the cold weather. Abstract objects include religion and feelings of love. This represents Popper's first world.
- A person's own knowledge base – this denotes the knowledge already in someone's possession which can be recalled when required. I can, for example, recall where to find the food store if I need to buy groceries, without having to look up the address or drive around to find it. This represents Popper's world two.
- Other people – information can be obtained by consulting other people. This represents Popper's world three.
- Indirect information sources – information can be obtained by consulting sources such as the Internet. This also represents Popper's world three.

Figure 2 illustrates these sources of information. In the following discussion I focus on reality as our source of information.

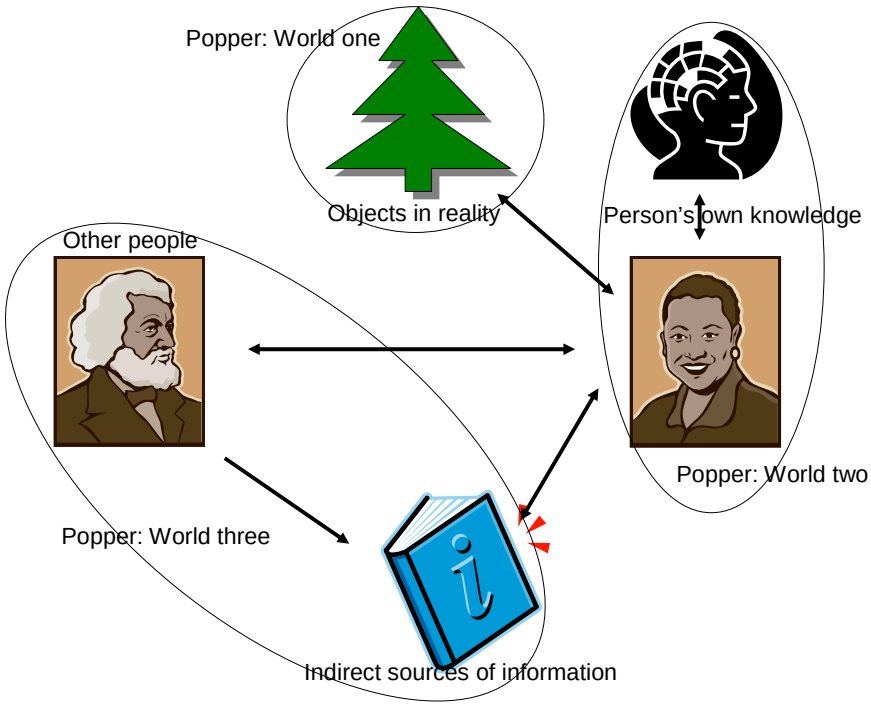

Figure 2: Sources of information

3.5.1 Reality as primary source and carrier of information

Using the definition of information as content that is communicated, the relationship between information (in the meaning of "content") and reality, which I define as the sum total of everything that "is" (objects such as trees, clouds, etc.) and as created by people (such as cars, shoes and intellectual creations), can be explained as follows: Reality in its totality is virtually "surrounded" or encompassed by information. In other words, the totality of reality carries information about itself in itself. This represents Popper's first world. For this reason reality, so to speak, functions as the primary carrier or source of information about itself. In this context information relates to the content from which reality consists for a person and which people can obtain and use in communicative form by means of sense perception. A person will for instance observe (abstracting information) that a particular tree (object in reality) provides shade in summer but loses its leaves in winter.

Taking the argument further, I would also reason that reality "out there" for us as people is restricted to an "information-based reality" which is only accessible through sense perception of the information which is available about objects in reality. In other words, I can only gain access to objects in reality (by which I mean the world that surrounds us, for example, trees, rivers and cars) if I have access to the information pertaining to those objects. If I cannot sense the information (hear, see, feel etc.) about a given object, then I would argue that that specific object does not exist for me. Let me explain this by means of an example: If there is a R5 coin on the moon, and I don't have access to the moon to actually see or feel the coin and nobody told me about it or I could not read about the coin on the moon then I can conclude that this specific coin, due to a lack of access to information pertaining to the coin, does not exist for me.

Corresponding to my "information-based" worldview the Dutch philosopher De Mul (2003:132) remarks: "... dat we informatie moeten beschouwen als (en mischien is zij dat zelfs) een basiseigenschap van het universum, naast materie en energie". Rucker (1988:31) also sees the origen of this change in worldview in what he calls the "computer revolution" according to which "...everything is information".

3.5.2 People as assigners and imparters of meaning to information-based reality

Following from the above discourse one can indeed say that we as humans are therefore in a "communication relationship" with objects in reality – in other words with the world that surrounds us. Through sensory perception observed information is transferred, among others by means of light and sound waves, to the brain where it is transformed into meaning. This meaning as it is assigned by us to the observed information is what I refer to as "knowledge". Epistemologically there is therefore a link with the rationalistic tradition which states that the source of knowledge (to know) is our human brain (Tarnas, 1991). Human knowledge therefore represents Popper's world two. However, the original source of our knowledge is information which can either be observed in reality (Popper's world one) or which has been recorded in some way or other by human representation symbols such as language and pictures (Popper's world three).

Knowledge as explained in the previous paragraph, in other words, is a human activity and is linked to the hermeneutical processes of assigning meaning, understanding and interpretation (Introna, 1997:55). In line with Debons (1988:6) as well as Kochen (1974:5) different levels of understanding of human knowledge can also be distinguished. The first of these levels consists of merely observing and being aware of a certain object without understanding or seeking to understand its intended meaning – as when someone watches a sports game without for instance trying to understand its rules. On the second level someone can to a lesser or greater extent ascribe significant meaning to what is observed. Taking the same example again, this would mean that the onlooker understands the rules of the game and is therefore able to follow the game intelligently. At the third and highest level someone would not only be able to ascribe correct meaning, but would be able to apply it correctly. In my example, the person not only understands the rules but can play the game. This indicates correct application of the knowledge the person has. I prefer to call this level of knowledge intelligence or wisdom. To know (knowledge) can therefore not be equated to "knowing the original intended meaning" or the ability of correct application of gained knowledge.

The human process of assigning meaning and of gaining and using knowledge is also co-determined by a number of important variables, including:

- our level of education;
- our socio-cultural framework;
- the context in which the information is presented to us;
- our different personalities and value system and also
- our human prejudices.

In summary, these refer to the shared *Weltanschauung* of communities (Habermas, 1987).

3.5.3 Information as objectified representation of reality: information and knowledge artifacts

As I have mentioned, indirect sources such as books and compact disks are also sources of information for people. This is Popper's world number three. I refer to these sources of information as the "objectified representations of reality".

Indirect sources have three characteristics. Firstly, as in the case of the primary source of information (*viz.* the object itself), these sources of information can only contain information by virtue of also being physically observable in order to become carriers of meaningful information for people (and by implication knowledge). I will explain this by means of an example. The information contained in a book remains potential information only until it is read by someone. After being read it becomes knowledge for this specific individual.

Secondly, such information differs from the original source of the information from which it has been "abstracted" or "unbundled" from objects in reality (the world in which we live) in that it has already been handled by a person or some form of technology. By this is meant that the information was obtained through human interventions which can include the use of technology such as cameras, and that it has been packaged in human communication symbols in specific carriers or information sources such as language or pictures. As humans we have the ability to process and represent obtained information in various ways. Information that is observed can be recorded on film without additional information about the object being made available. Meaning can also be imparted to the observed object by not only recording it on film but also by providing a description of the object that was photographed.

Lastly, these information sources which I have discussed in the previous paragraph, just like any other object in reality, can in themselves be a primary source of information for us. For example, a book containing information about birds (as a specific object in reality) can thus be an original source of information for us when someone uses sensory observation to obtain, for instance, information about the size or colour of the book.

Based on the above explanations of these sources of information I argue that these information sources, which are a result of our human representations (language, writing, pictures) can be regarded as "objectified knowledge" but not as knowledge itself. Neill (1992:34) correctly observes: "Knowledge representation [by that he means, for example, books and TV programs-JJB] are not knowledge but rather representations of knowledge." Likewise, the so-called practice of "making knowledge tangible" is according to this view questionable. Knowledge is limited to what people know. Once it is made tangible by means of human representation symbols, it again becomes information and representations of our knowledge. Representations of our knowledge can also be referred to as explicit knowledge (Nonaka, 1998).

In the knowledge management literature information artifacts and knowledge artifacts are increasingly being seen as discrete elements (Davenport & Pruzak, 1998; Nonaka, 1998; McInerney, 2002). This is a viable distinction provided both continue to be understood as objectified representations of knowledge – as I have explained in the previous paragraph. The difference is mainly to be found in the degree to which the receiver is able to ascribe the correct meaning (as intended by the sender) to the transferred information. Normally, an information artifact is regarded as a "lesser value-added" representation of knowledge, which hampers its understanding and application. A knowledge artifact on the other hand is a value-added representation of knowledge in which the emphasis is on easily understandable and applicable transferred information. Understanding and use are of cause determined by the user of this particular knowledge artifact. The difference can be explained by using the car manuals distributed in South Africa as example. In most cases, where such a manual is packaged in text format and one language only, it can be regarded as an information artifact – in other words it has lesser value added. It would become a knowledge artifact if, for example, it was in multimedia format with audiovisual representations and the option of accessing the information in

any of the recognised languages in South Africa. This allows the receiver of the information more possibilities for understanding and applying the information correctly and therefore gaining usable knowledge that can be applied correctly.

One can therefore make the assumption, based of cause on the user, that for an information user a knowledge artifact is much more valuable because it focuses on levels 2 (understanding) and 3 (application) of knowledge as explained in 3.5.2. This is particularly important for information poverty because knowledge artifacts, if packaged correctly, can contribute significantly to alleviating this form of poverty.

It is, however, important to bear in mind that a knowledge artifact remains a representation of knowledge and that it does not guarantee understanding and correct utilisation. The receiver, and by implication the interpreter of the knowledge artifact, remains the criterion for imparting meaning. Within the context of the hermeneutic approach to information (see discussion above) one could argue that the creator(s) of knowledge artifacts have to bear in mind the prejudices and socio-cultural framework (*weltanschauung*) of the specific users (target market) of such artifacts. The creation of knowledge artifacts is particularly successful in cases where there is a possibility of participative sharing of knowledge between the creators and receivers of the information.

One of the methods based on the use of knowledge artifacts, to encourage communication, to offer opportunities to learn and to promote the sharing of knowledge, is Nonaka's knowledge management model which he tagged as the SECI, *ba*, and knowledge assets model (1998).

In their article "SECI, *ba* and Leadership: A Unified Model of Dynamic Knowledge Creation", Nonaka, Toyama and Konno (2002) introduce the SECI model of knowledge management. It consists of three elements, namely the process of knowledge creation (SECI), resource development and use (knowledge asset) and the actual context and place where knowledge is shared (knowledge *ba*).

The SECI model of knowledge creation is based on the assumption the knowledge can only be created when there is interaction between tacit and explicit knowledge – a notion that I have explained earlier on. The creation

and sharing of knowledge process comprises of four elements or SECI which are:

- Socialisation. This is the sharing of tacit to tacit knowledge, for example, observation.
- Externalisation which is the process of conversion from tacit knowledge to explicit knowledge. Video recordings of work serve as a good example.
- Combination. This process implies the conversion from explicit to explicit knowledge, for example, when workers share their explicit knowledge with one another at meetings.
- Internalisation embodies the process of internalising the explicit knowledge. This process is closely linked to "learning by doing" (Nonaka *et al.,* 2002: 44) and is the ability of individuals to apply what they have learned.

Knowledge assets in their terms (which I refer to as "representations of knowledge") can be seen as the basis of knowledge management and comprises the resources that are used to create knowledge. In the words of Nonaka *et al.,*: "We define assets as 'firm-specific resources that are indispensable to create values for the firm' " (2002:55). Four different qualities can be distinguished. These are: experimental knowledge assets (such as expert skills and market experience); conceptual knowledge assets (for example, designs, and brand equity); routine knowledge assets (for example, the know-how in daily operations and routines) and systematic knowledge assets (for example, databases, documents and patents).

The third element in Nonaka's model is knowledge *ba,* which is a Japanese word for place or space and is the shared context for knowledge creation. It embodies shared contexts to share experiences, and can be physical, virtual or a combination. The knowledge *ba* is closely related to the *weltanschauung*.

3.5.4 The life cycle of information

Various authors, including Flowerdew (1984:9), Vickery (1987:11-13), Burk and Horton (1987:19-20) have previously pointed out that information has a specific life cycle. The life cycle of information is also emphasised in the process approach, which refers to the creation, gathering, organising, storing, retrieval, destruction, distribution and use of information. As I will

explain in Chapter 4, understanding this life cycle of information is crucial for understanding information poverty.

It is also important to understand that the life cycle of information is a characteristic which is closely associated with the way we as humans process and use our knowledge. We create, collect, store, organise, retrieve, distribute and use information and knowledge and in doing so we use a variety of means and techniques in the process, including information technology.

In the context of my proposed approach, the life cycle of information can furthermore be explained by regarding information as both an input and output of our knowledge – an aspect which I have touched on in the previous part when explaining the difference between information and knowledge.

Information as input of our knowledge can be explained as follows: we collect information by means of our senses (observing, smelling, hearing etc.) from a variety of sources. I have identified four different sources (see 3.5.1). We then process the collected information and convert it into knowledge which we organise (structure), store in our memory, recall (retrieve) and use when needed. These activities represent the internal life cycle of information.

The picture changes when information is an output of our knowledge. Here the external cycle starts with people creating knowledge, retrieving it from where it is distributed and used. When this information is distributed, it can then be collected, organised, stored, retrieved, distributed and used by someone else. These activities can be between people who are communicating directly with one another, or it can take place indirectly via other information carriers including books, CDs and videos.

Just as information is tied to its carrier, it is also tied to this life cycle. The cycle is repeated every time someone works with information, and it can also be interrupted – as when the information carrier is destroyed or stored in such a way that it cannot be retrieved.

3.6 Characteristics of information

Based on the three variables namely reality, people and the representation of reality through human representation symbols, it is possible to identify the

following characteristics of information which have a specific bearing on information poverty.

3.6.1 Object-connectedness of information: The relationship between information and objects in reality

As I have stated in explaining my own approach to information, information always has a bearing on an object in reality. Information can never so to speak "stand on its own" and has no meaning in itself. Geldenhuys (1993:52) refers to this characteristic as the "subject-connectedness of information". The object-connectedness of information means that even when information about an object is unbundled from the object to which it refers, the unbundled information will always have a bearing on the object from which it was unbundled. This characteristic of information has some important implications which I will explain in the following paragraphs.

3.6.1.1 Inexhaustibility of information

The first of these implications is the fact that information, in terms of its ability to be unbundled from objects, is inexhaustible. By this I mean that it is at least in theory possible to unbundle unlimited amounts of information from a specific object without exhausting the object or the information that pertains to the object. For example, a thousand people can look ("look" will translate in this context to the unbundling of information by means of senses) at a tree (object in reality) without depleting either the tree or the information about the tree. This is a unique feature of information which has implications for specifically the new information-based economy which has not only introduced globalisation but has also led to information poverty. I will elaborate on these implications in the following chapters.

3.6.1.2 Indestructibility of information

Information is not only inexhaustible, but in a certain sense also indestructible, because when an object is physically destroyed, this does not necessarily mean that information about the object has also been destroyed. To use the example in the previous paragraph again: the tree (object in reality) can be destroyed, but the information unbundled from the tree by means of our senses ("seeing" the tree) will still be available for distribution and use. There are exceptions, of course. Information can be destroyed if the tree has died and no one is able to recall anything about the tree or if the people who saw the tree also died without being able to share their knowledge with anyone else. Destruction of information is, however, not so

simple because of the fact that it is relatively easy to duplicate, recreate and distribute information. This feature of information also has important implications for amongst others access to information about objects that do not exist any more but can still benefit human development. Again, I will elaborate on these implications later in the thesis.

3.6.1.3 Independent existence of information

The indestructibility of information which I have explained in the previous paragraph, points to another reality-related characteristic of information. I have argued that from a human being's perspective, an object cannot exist without information being "bundled" with the object itself. In other words, a tree does not exist for me if I cannot observe the tree by means of my senses. On the other hand, it is possible for the information about the tree to exist without being "bundled" with the tree. This feature of information again explains why destroying an object does not necessarily imply the destruction of the information about that object. This characteristic has important implications for access to and use of information, particularly in the current era of globalisation that is driven by an information-based economy. I highlight two implications. Firstly, this feature of information allows a person the ability to become knowledgeable about an object without having physical access to it. I can, for example, gain knowledge about a certain tree or animal by watching a film about the tree or animal. However, access to information about an object does not necessarily imply access to and use of the object itself. In this way I can have access to information about the fruits of an apple tree, but without access to the apples I will not be able to eat them.

Another important feature that can be derived from this characteristic of information and that has implications for intellectual property and the distribution of information is the fact that human ownership and control of information do not necessarily imply ownership and control of the object itself. It is possible, based on this characteristic of information, to distinguish four different ownership/control relationships that can exist between objects and information about these objects. These relationships are:

- No ownership of either the information or the object. The following example will illustrate this relationship. If I look (unbundling of information) at the moon (object) I do not possess either the information about the moon or the moon self.

- Ownership of the information but not ownership of the object. In elaborating on the previous example this would imply that I not only look at the moon but can also describe what I see in a unique way. This can imply that I can actually own the information (my description of the moon) and may even exclude others from my ideas about the moon. However, owning this information does not imply that I own the moon itself.
- Ownership and control of the object but ownership and /or limited control of the information about the object. The reverse of the above relationship is also possible. I can, for example, be the owner of a car, but at the same time will not be able to control or "own" all the information about my car. It would be very difficult to prevent others from seeing my car. I can, however, control the information about where I park my car at night by deciding with whom I will share this information.
- Ownership and control of an object as well as ownership and control of the information about the object. This relationship is possible when I develop my own idea (immaterial object) and decide not to share the information about it with anyone.

3.6.2 Carrier-connectedness of information: The relationship between information and its carriers

Geldenhuys (1993:55) in his thesis refers to this relationship as the "carrier-connectedness" (*draergebondenheid*) of information and it refers to the fact that information can never be isolated from a carrier. As discussed previously, a variety of carriers can be identified, including objects in reality itself as primary carriers (such as a tree that contains information about itself), together with secondary carriers such as the human mind, books, sound and light waves and different representation symbols, including language and writing. This "carrier-connectedness" of information has also certain unique and important features which I will discuss in the next few paragraphs.

3.6.2.1 Repackaging of information in different carriers

It is possible to repackage the same information, about the same object in a variety of carriers. For example, I can translate the information from one language to another or repackage a text-based document into a multimedia presentation containing text together with audio-visual forms of presentations. One of the main advantages of repackaging information is the

fact that it can allow illiterate people to access information. The ability to repackage information in all spoken languages also opens up the possibility to allow (in theory) all people to have access to the same information.

3.6.2.2. Access to and accessibility of information

Access to an information carrier does not necessarily imply or guarantee accessibility of the content. Access to a book (carrier) does not guarantee access to the content (text/information). If the book contains only language (in other words: text) then there are at least the following criteria that a person needs to meet before having access to the content:

- being literate;
- understanding of the language; and
- understanding of the content.

3.6.2.3 From pictures, art and writing to cameras and computers

To be able to understand the real economic and socio-cultural as well as political impact of information poverty, it is important to make a few introductory comments on the impact of modern ICT as carrier of information on society.

Before the development and introduction of modern ICT we as humans had, apart from language, three rather limited techniques, in terms of time and space, to describe and unbundle objects in reality. These tools were pictures, art and writing. Apart from being limited by time and space these were also subjective because we could only paint and describe our subjective perception of what we perceived though our senses.

The information technology that really introduced the new information-based world (some would refer to specific digital cameras as the cyber world) was the camera and the art of photography because this information technology (as a carrier of content) introduced the so-called “true” and objective unbundling of our reality. De Mul argues as follows: “De fotografie is een van de belangrijkste hulpmiddelen geweest waarmee de moderne mens zijn wereld tot beeld heeft getransformeerd. Meer dan enig ander instrument geeft het fototoestel het menselijke subject een beeld van de werkelijkheid, en meer dan enig ander beeld wordt het fotografische beeldt gekenmerkt door objectiviteit” (2003:156).

One can thererfore say that modern ICT, including the camera and other digtial technologies like the computer, has permanently established our information-based world. The ability of modern ICT (for example, the World Wide Web) to not only unbundle information "objectively and correctly" from its original carrier without direct human intervention (art, pictures or writing), but also to digitise the content, introduced revolutionary changes regarding access to and accessibility of objects in reality. It allows more people to gain simultaneous access to objects in reality, to manipulate and interact with the content according to need. This is being done without the same level of time and space constraints that are normally associated with other carriers such as books and videos and introduced the new weightless and dematerialised global information economy (Webster, 2002:17). I will elaborate on these characteristics and their bearing on information poverty later in the thesis.

3.6.2.4 Carriers of information allows control and ownership

It is difficult to control and claim ownership of one's own knowledge – knowledge in the sense in which I explained it in this chapter. The reason for this is that knowledge is a human phenomenon that is difficult to capture. The carrier-connectedness of information on the other hand allows for the capturing of information as input to and output of human knowledge. It is, for example, possible to control and own a book and exclude others from using it.

This ability to control and own information has some important legal and moral implications. Those who favour access to information might argue that control of access to information due to its connectedness to carriers will impact negatively on this fundamental right of access to information. On the other hand, creators of information products will use this "carrier feature" of information to claim their ownership of the content and to protect it from misuse.

3.6.2.5 Information as an immaterial legal object

The fact that it is possible to control and own information due to its carrier-connectedness allows for a short but important discussion on intellectual property rights.

To start with, a terminological clarification is needed. In the context of the above discussion, it appears that it is not technically correct to refer to the

ownership of information (as content) as intellectual property. The main reason is that it is not possible to alienate information (as content) or human knowledge. For a product to be regarded as property to which one can claim ownership, it is a precondition that it has to be possible to alienate that product (Van Zyl & Van der Vyver, 1982:405).

Although one can therefore, strictly speaking in legal terms, not be the owner of one's own intellectual product (because the alienation thereof is not possible), legal provision is nevertheless made for the protection of the economic interests that one should enjoy with respect of one's efforts to produce intellectual products. The "carrier-connectedness" of information allows for the legal protection of information products because it allows for some form of control. In legal terms certain information products are treated and protected as immaterial legal objects (Geldenhuys, 1993). The following information-related products are considered to be immaterial legal objects (Geldenhuys, 1993:100-109):

- right of authorship;
- trade secrets;
- patent rights;
- trademarks;
- model rights;
- cultivation rights and
- heraldic rights.

Based on its carrier-connectedness, legal experts have identified the following criteria for information products to be treated as immaterial legal objects:

- Information should be packaged in some tangible medium which must meet the criteria of controllability and exclusion of use by others.
- Intellectual property is considered as an immaterial legal object only if it has a value for its creator and can be used for need satisfaction. Such an interest or value must be mainly economic in nature. Teijl and Holzthauer (1991) pay attention to the economic aspect of authorship and its associated protection. According to these writers, the economic justification of legal protection of intellectual property does not lie in the fact that such information is scarce and can be depleted (as in the case of other products), but relates to the fact that the producer, in other words

the author and others that are involved in the value adding and distribution of the information product, must enjoy the necessary economic protection.

3.6.2.6. Communication failure

The carrier-connectedness of information presents other problems, such as obsolescence of the information, duplication and lack of systematisation (Boon 1984:87). This affects not only its retrieval, but also the effective utilisation of information for carrying out tasks. These problems are mainly linked to the so-called publications and information explosion. Consequently relevant, correct and useful information as packaged in some information source or other is becoming increasingly obscured in the masses of irrelevant information. The carrier-connectedness of information can therefore cause communication failures of information as manifested in its life cycle.

3.6.3 Human-connectedness of information: The relationship between information and humans

Earlier in this chapter I argued that knowledge is a human activity consisting of gathering information and cognitively processing it. Knowledge also has some unique features that are relevant to the understanding of information poverty. In the next few paragraphs I will elaborate on these features.

3.6.3.1 Humans as assigners of meaning

As humans we assign meaning to what we perceive through our senses. We furthermore have a fragmented view of objects in reality that we perceive through our senses. This is partly due to our limited knowledge about what we perceive as well as the fact that our human senses are fallible.

Because we have a rather limited as well as fragmented sensory perception of reality, the question arises about the relationship between what we know and the "truth" or the so-called "correct meaning out there". This relationship between truth and meaning has been debated by philosophers for centuries. Some participants in this debate include Locke, Hume, Descartes, Nietzsche and Leibnitz. Various theories about the truth have also been developed. Some of these are the correspondence, coherence and phenomenological theories about truth (Thiselton, 1978:874-901). The purpose and scope of this thesis does not permit a discussion of these theories.

Since this study focuses on information poverty, I will highlight three relationships that deal with the way we as humans assign meaning to what we perceive. This discussion is merely meant to explain the way in which we assign meaning and does not claim to be an in-depth epistemological discussion. These are:

- The meaning we assign to objects that we created ourselves. I refer to these as human artifacts.
- The meaning we assign to objects (human artifacts) created by others, recently or in the past.
- The meaning we assign to objects in nature which were not created by humans. This includes, for example, wildlife and plants.

An example of the first "meaning-relationship" is the meaning a particular society assigns to a chair that is designed, built and used by that society. This can be regarded as the closest to the "true or correct meaning". One can even use the word "original intended meaning" to express this relationship, because we, as creators, imbue our creations with a specific practical value and significance. However, two important remarks about assigning the "correct meaning" should be borne in mind. Firstly, these artifacts are mostly created and used within a society where the same sets of truths (in terms of assigned meaning) are shared. Individuals who are not members of such a group may find it difficult to ascribe the "correct intended meaning" to certain items of use. A stranger who visits a city and has never seen a car before might find it difficult to assign the correct (original and intended) meaning to it. Secondly, people who are part of the society in discussion must also learn and be educated about the intended meaning and correct use of such artifacts. Education is therefore a prerequisite for assigning the correct intended meaning to created artifacts. For instance, people have to be taught the intended meaning of a car as well as how to drive it.

Assigning meaning and practical value by a society to artifacts which it did not create is more complicated and functions at two levels. The first level is relevant to those artifacts created by societies that have vanished. In addition to the various scientific methods used for instance to determine the age of these artifacts, transferred information (oral or written) also plays a major role in determining their utility value. Knowledge about extinct cultures that did not possess a written tradition is generally lost – a good example is the history and ways of living of the early American natives. Assigning meaning

to artifacts and other objects from such cultures is in other words mostly limited to some hypotheses about their use.

Furthermore, societies have a particular meaning-relationship with artifacts which are created by other societies and become their own articles of use through a process of acculturation. This phenomenon has been further encouraged and stimulated by European expansionism over the past three to four centuries together with the process of globalisation (Stiglitz, 2003). The meaning imparted by specific cultural groups to the creations of other cultures has certain characteristics. In some cases the same meaning is given to them, in other cases it is adapted and contextualised – and it also happens that a culture, for a variety of reasons, fails to impart any useful meaning to artifacts alien to that culture (Mander, 1991).

Humans also assign meaning to objects in nature, such as the moon, trees, plants and animals. This is mainly done through observation, experience and scientific research. However, our knowledge and understanding of nature is very relative and also limited – firstly because scientific knowledge constantly changes, secondly because different cultures give different meanings to nature and thirdly because we constantly discover new knowledge without reaching a point of knowing everything about nature. For these reason claims of absolute truth can never be made about nature.

3.6.3.2 Knowledge is value-added information

Numerous studies have been launched to investigate the relationship between information and value. Most of these studies have been carried out from a consumer and economic perspective. Taylor, in his *Value-added processes in information systems*, which was published as early as 1986, made a significant contribution to this theme by developing a value-addition model for information systems. Other authors who have done work in this field include Boon (1984); Tellis (1993); Brinberg (1989), Byrd (1989) and Kingma (2001).

In concurrence with the views of Taylor (1986:4) and Boon (1984:4) that the value of information lies in its usefulness for people, it is clear that adding value to information is closely linked to people's ability to take information which is perceived with the senses and transform it into meaning. Thus, to reiterate my previous arguments about knowledge, every person who collects information and processes it into knowledge is essentially engaged

in adding value to information. However, the human process of adding value (assigning of meaning) to information that is being processed by the human brain, is a relative concept due to the subjectivity of human understanding and interpretation of reality. As I have indicated, the value imparted to information can vary from person to person, and the same person may within different contexts derive different meanings and application possibilities from the same information. For example, a person might not recognize the same person in a different context.

The value of information for people furthermore does not intrinsically reside in the information itself (Taylor 1986:4), but in people's ability to transform that information into meaning and application. Adding value to information is therefore related to making information accessible, understandable and applicable for people in respect of certain objects in reality. From this angle adding value can thus be relevant to the content itself, the representation medium through which it is communicated and the various information sources.

In regard to content, value can be added in two ways. The first way (which one can also refer to as the internal process) is where the object is personally perceived and where such information, based on the person's own existing knowledge base, is converted to meaning. In the second way a person can also obtain additional and in some cases already interpreted information about such an object by consulting other information sources about the object (the so-called external process). In the latter case value can be added without direct observation of the object itself through the senses. I can, for example, read about a tree in Alaska that I have never seen. Reading about the tree allows me to add value to my knowledge about this specific tree and trees in general.

Adding value in respect of the human representation symbols through which the communication of information takes place relates in particular to making it accessible, as when it is packaged in secondary information sources. This way of adding value can for instance be done by translating the written text or spoken language or by using graphic representation. Graphic representation is particularly useful when information has to be made accessible to illiterate people.

3.6.3.3 Knowledge as instrument of power

Several writers, among others Foucault (1980), Toffler (1990), Gonzalez-Manet (1987), Line (1990), Giddens (1991) and Introna (1997) have remarked on the relationship between information/knowledge and power as well as the various areas in which power is exercised.

To explain this relationship, the point of departure is once again the fact that human beings give meaning to reality in perceiving it with the senses, and that people can make a representation of reality due to their ability to communicate this information about reality.

The relationship between people, knowledge and power can be explained from two perspectives. In the first place power lies in human beings' ability to "control" reality, so to speak. This is done by means of the meaning that we assign to nature – not only in the sense of name-giving, but also in terms of the use-value that we assign to it. In this way nature is to a certain extent made dependent on people's ability to impart meaning to *inter alia* the content of the information about the reality that is observed. It is, for example, within our power to decide what purpose a tree will have for us. We can either use its wood to make a fire or furniture or use the tree for shade.

Secondly, people also possess power where information is an output of human knowledge – in other words, knowledge that is communicated by people through representation symbols and media and which counts as the representation of reality by people. The power relationship between people and such information resides in the fact that human beings are able to represent reality and that they have the power by means of a variety of technologies to manipulate representations of reality. Information from this perspective can in particular be applied as instrument of power where societies are dependent on this information (*viz*. the representation thereof by others) for decision making, to form their worldviews and for the ability to do their jobs. Television serves as a good example to illustrate this power relationship. Most of us form our opinions and shape our worldviews by what we hear and see on television. Television images (as representations of reality) are, however, mediated and manipulated by people and technology. This explains why Baudrillard (1993) argued that the Gulf war in 1991 never happened – it was according to him created by CNN.

Neill (1992:50) correctly points out that every person who wishes to use information as an instrument of power not only needs knowledge but access to information, the ability to apply it, access to distribution channels and finally the will to use it. This last point made by Neill emphasises people's own value systems in the way in which such power is handled and exercised.

In figure 3 I summarise the three interrelated characteristics of information.

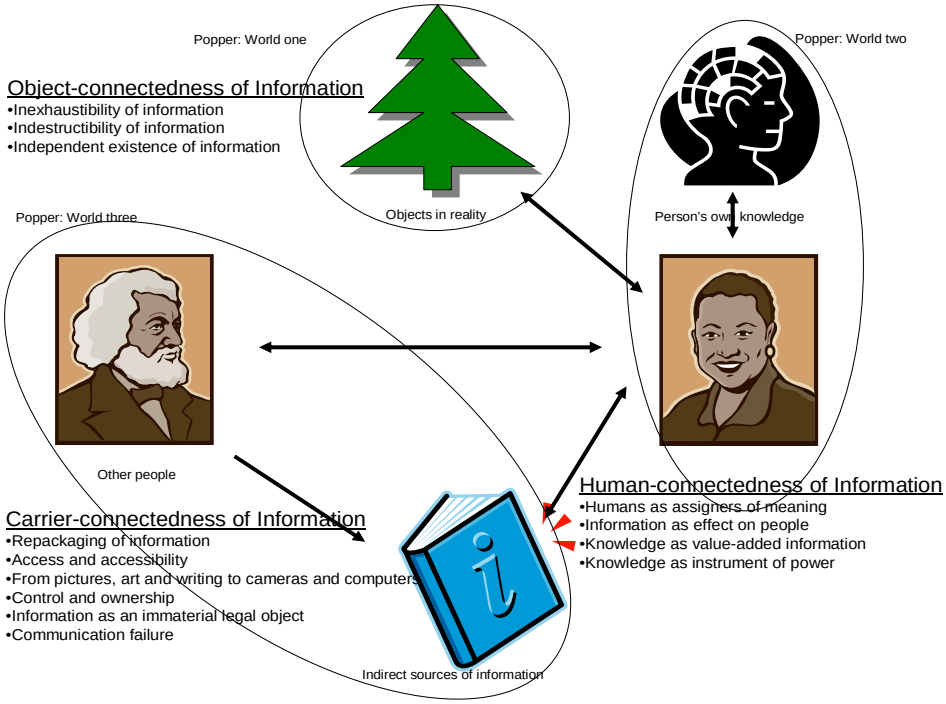

Figure 3: The three interrelated characteristics of information

3.7 Understanding information and its implications for the study of information poverty

What are the implications of all the many characteristics of information in respect of information poverty? To understand this, the concept of poverty as defined in Chapter 2 must be revisited, namely that poverty is that condition of life where people lack sufficient resources to supply their basic needs for survival. Various levels, forms and degrees of poverty can be distinguished and it can be measured quantitatively as well as qualitatively.

3.7.1 Information as instrumental resource for satisfying all needs

The fact that all objects in reality are only accessible by means of the information that pertains to such objects has important implications for

poverty. The most important implication is that access to information about the basic necessities of life is an essential prerequisite for addressing and finding possible solutions for poverty. Without access to this crucial information poor people (and by implication all people) cannot meet and satisfy their basic needs. Water (object in reality), for example, has no meaning for people if they do not know where to obtain it. This instrumental role of information for satisfying human needs further serves as basis for the view that access to the information needed to satisfy basic needs can be regarded as a basic human right. I will say more about this concept in Chapter 4.

3.7.2 Access to information and its usefulness

In the preceding paragraph I showed that without access to information in respect of essential resources, people find it impossible to satisfy their basic survival needs. The fact that information can exist independently of the resources (objects in reality) to which it is linked, as well as the fact that certain information carriers can minimise the spatiotemporal restriction of access to these resources, has further implications for understanding information poverty.

The first one is that it is possible for people to obtain knowledge of objects in reality without the objects themselves having to be perceptible to the senses. As I pointed out earlier, this carrier-connected characteristic of information, together with the development of modern ICT, has made possible the phenomenon of globalisation. There are many advantages in the fact that people can have access to objects in reality without having to experience them personally through their senses. It enables people to become better informed, able to take better decisions, communicate more effectively and access extensive resources of which they were formerly unaware. Modern ICT has made it possible to distribute the expertise of experts to others all over the world without these experts having to be present everywhere. This characteristic of information has important implications for among others education and making available knowledge artifacts which can assist people in understanding and using resources better. The distribution of medical knowledge artifacts is a good case in point.

However, there are specific disadvantages as well. Access to information without access to the object can mean that such an object cannot in most cases be used. This can have a significant impact on poor people since

access to information about water means little if the water itself is not accessible. The problem is made worse if incorrect information about the object is available. There are two possible outcomes depending on the nature of the incorrect information that is available.

- If it is inaccurate "access information" about an object (for example, an incorrect telephone number) it may mean that such an object is inaccessible.
- If access to an object can be obtained but the information about the object is incorrect, the object may be used incorrectly. Incorrect information about water purification can, for example, have serious health consequences for people who gain access to infected water and drink it without purifying it correctly.

People are not always able to impart the correct meaning to the information observed without direct observation of the object itself. This view is supported by the remarks of Baudrillard (1993), who said that in the era of information technology we have access to more information but by implication to less knowledge as well. This is because the original point of verification for people – the object itself – has shifted to a second, third or even further abstractions. The implication is clear: if an object in reality is represented as a second abstraction by means of information, it can be manipulated and even changed.

Modern ICT also makes it possible to recreate reality. In the process reality and virtual reality become concepts which are difficult to distinguish. For instance, a virtual concert of Frank Sinatra was held in New York between 10 and 19 October 2003. Although Sinatra died in 1998, modern technology has made it possible to create three-dimensional images of the deceased singer and even to cause him to sing new songs (USA Today, Wednesday June 11, 2003: section D:1). The recreation of objects by means of information can also help people understand such objects better. In medical training, for instance, students can take a virtual tour of "information-recreated" organs. This characteristic of information has major implications for development and education.

Certain objects are characterised by the fact that they can be manipulated and changed by information that relates to them. This mainly applies to information products and services as well as money. The reason is that these objects already represent other objects. Money (paper or coins), for example,

represents a value. It follows that money can be replaced by information (figures) as representation of the value. This characteristic of information makes it possible among other things to pay out unemployment grants to poor people without their having to travel long distances. Educational information (as information products) can also be made available in this way without people having direct access to the original book or article. Distance education serves as a very good example.

3.7.3 Information as a category word

Based on the fact that reality consists of various objects and artifacts, different categories of information can be distinguished, such as political, economic, recreational and private information.

In attempting to understand information poverty, two categories of information should be singled out. The first is the difference between essential and non-essential information. This distinction can be explained as follows: certain essential information is indispensable for poor people and is required daily to provide their basic needs for survival and for soicio-economic development. Information about where to obtain food or medical services is an example of essential information. Non-essential information, on the other hand, is information which does not relate directly to providing in (poor) people's daily basic subsistence needs. It may even be important information in some cases, but is not necessarily essential for survival. Information about taxi routes is a case in point. I will elaborate in more depth on essential information in the next chapter.

The second category is an economic distinction which specifically relates to the demand for distribution of information products and services in the market. On the one hand, some information products and services are distributed as commodities in the market. This is normally done at a price determined by supply and demand and can imply the exclusion of poor people (Wessels, 2001:493). Collective information, in contrast, consists of information products and services from which people cannot or should not be excluded, and where it is incumbent upon government and government bodies to ensure that it is fairly distributed to all people (Kingma, 2001:67). The market mechanism (demand and supply based on price) in other words fails to fairly distribute such information products and services in the market. The question of which categories of information products and services should be regarded as collective and which as commodities is

discussed in the following chapter. The answer to this question has significant policy implications in respect of the way in which essential information should be distributed to poor people.

3.7.4 Access to and accessibility of information

I have agued earlier in the chapter that the carrier-connected and human related (knowledge) characteristics of information have important implications for access to and the accessibility of information and by implication for information poverty. The first is that access to the information carry does not necessarily lead to access to the content. There are numerous reasons for this. People may not have the instruments/technology and/or knowledge to retrieve the information. Information (content) on computer disks (information carriers) will only be accessible if someone has the technology (computer) and skills (computer literacy) to make it accessible. To be able to access information packaged in modern ICT in most cases presupposes an accessible and costly information infrastructure such as hardware, software and efficient internet access. Most people in the developing world lack the resources not only to implement but also to maintain such an information infrastructure.

Language as carrier of information (content) further complicates the relationship between access to and the accessibility of information. The problem is that access to language does not guarantee that someone will be able to impart meaning to content. Thus, even if I am able to open and read a computer disk, this does not necessarily mean access to its content (see also the example in the previous paragraph). There are two reasons for this. The first and most obvious is that the reader may not be able to understand the language. And even if the reader can understand the language, it does not follow that the meaning will be understood or correctly applied. The spoken sentence “The badgers got really killed in Illinois” means something totally different to a supporter of the Badgers basketball team in Wisconsin than for an English-speaking person in South Africa. This is because language is not an objective, independent carrier of meaning; it gains meaning within a usage context which is co-determined by the socio-cultural framework of its users (Wittgenstein, 1956; Luhmann, 1995; Introna 1997; Britz & Snyman, 2002).

As I have pointed out the repackaging potential of information carriers can facilitate accessibility to content. Information can be translated and

information in text format can be repackaged in other human representational symbols, including audiovisual presentations. This would make it possible for illiterate persons to access content.

3.7.5 Measuring information poverty

It is also possible to measure the information poverty phenomenon both qualitatively and quantitatively by using the reality-, human- and carrier-connected characteristics of information.

In theory, the following variables in regard to information in its relation to poverty can be measured:

- The number of literate and information-literate people.
- Determining what is essential and non-essential information in a specific community.
- Determining the size of the information infrastructure of a country or community (the number of people employed in the information sector, the number of libraries and publishers, internet access).
- The extent to which information which relates to relevant resources is available and accessible.

It is also possible to determine, based on the above criteria the individual, group, regional and community levels of information poverty. In addition the causes and results of and solutions for information poverty can be discussed using these characteristics.

3.8 Conclusion

In Chapter 3 the concept of information was discussed. Its etymological roots as well as contemporary usage were indicated. By using Popper's three worlds and based on the reality-connected, human-connected and carrier-connected characteristics of information I developed an own information model that can be used to understand and address the moral issues relating to information poverty. In the last part of this chapter I illustrated the relationship between poverty (Chapter 2) and information (Chapter 3). The discussion in Chapter 3 forms the framework for a detailed analysis of information poverty in Chapter 4.

CHAPTER 4

DESCRIPTION OF INFORMATION POVERTY

4.1 General introduction

Where Chapters 2 and 3 dealt with poverty and information, Chapter 4 deals with information poverty. It can thus be seen as a logical outflow of the previous two chapters.

In the first part of Chapter 4 I provide an overview of the current literature on information poverty. Following from this I present an own description of information poverty based on a hypothetical ideal information-rich society. Based on the definition of information poverty the different levels, qualitative and quantitative indicators and the causes of information poverty are discussed. A summary of the research findings of Chapter 4 has been published in the Journal of Information. The full details of the article appear in the bibliography.

4.2 Literature overview of information poverty

4.2.1 Background

As indicated earlier in Chapter 2, poverty is described as that condition in which a person does not have adequate means for living meaningfully. Furthermore, poverty is not only related to the presence or absence of necessities; it is also manifested in the inability to produce such necessities. Lötter (2000:101) refers to this condition as “absolute poverty”. The United Nations report on poverty (*1998 Report on Overcoming Human Poverty*) refers to absolute poverty as well as poverty owing to a lack of income, relative poverty and overall poverty.

The experience of being information poor is not new (Lievrouw & Farb, 2003). Throughout history, individuals and societies have in some or another way lacked not only raw materials and other resources, but also the information needed to address their basic needs, together with the skills and abilities to satisfy their specific information needs.

However, a new dimension was added to the notion of information poverty with the transition to the information era. The transition, supported by the

development of ICTs, brought about a globalised information-driven economy, also referred to as the knowledge economy, based on intellectual, intangible assets (Freeman, 2001). I will discuss the impact of advanced capitalism and globalisation on information poverty in more detail under the section dealing with the main causes of information poverty. It is important to note that the current debate on information poverty has been overshadowed in the last decade by the notion of globalisation and the accompanying growth of the importance of ICT (Lievrouw & Farb, 2003:500, Britz, 2004)). ICT is a technology that has grown relentlessly in its own right and has caused a phenomenal growth in the information and knowledge industries of most of the developed countries. It has further exacerbated the gap between the rich and poor countries, leading to the coining of the terms information-rich and information-poor countries and the "digital divide" (Rifkin, 1995; Haywood, 1995; Castells, 1998; Norris, 2001; Bolt & Crawford, 2000; Nath, 2001; Floridi, 2001; Lievrouw & Farb, 2003; Hamelink, 2003; Britz, 2004).

4.2.2 Three interrelated approaches

Apart from the statistical indicators regarding the so-called digital divide in the world, a variety of approaches and definitions of the concept information poverty is found in the literature. A literature review shows that although few would deny the existence of information richness and poverty, little agreement exists on exactly what these terms refer to. In academic as well as popular literature the terms information rich and information poor are used without being explicitly defined (Britz, 2004). The extant confusion is evident in the extensive yet divergent debate concerning the issue.

I will discuss some of these definitions under three categories. These categories are based on the main characteristics of information that were identified in Chapter 3, and are related to one another. These categories could even be regarded as different approaches. It is important to note that the authors quoted in this context should nevertheless not be categorised as if they only present one specific point of view. Such an interpretation would not do justice to their points of view. The categorisation is based on what I interpreted as the main focus and accents of each author. In this way it is possible to identify and categorise the different perspectives on information poverty. The following three categories or approaches are identified: an information connectivity approach (linked to the carrier-connectedness of information), an information content approach (linked to the reality

connectedness of information), and what one could call a 'human approach' – emphasising the knowledge aspect of information poverty and linked to the human-connectedness of information (Britz, 2004). I will discuss a last category, called "related views on information poverty" at the end.

4.2.2.1 Information connectivity approach to information poverty

The information connectivity approach to information poverty is based on the conduit characteristics of information and focuses mainly on the lack of access to modern ICT. This approach is also linked with the so-called digital divide and information gap between the rich and poor which is seen as the disparities in access to modern ICT. It is furthermore based on the assumption that there is a causal relationship between the material status and economic wealth of people and access to information via ICT. The relationship hinges on two premises. The first is that ICT has the capacity to both increase and restrict access to information needed to satisfy needs, and the second is that socio-economic and political disadvantages will in most cases also produce informational disadvantages.

The information connectivity argument goes more or less as follows: certain categories of valuable information, such as economic information, are mainly available in an electronic format. In most cases this implies that poor people, due to the financial costs and in many cases also a lack of know-how knowledge of modern ICT, are unable to access and fully exploit these technologies and thereby benefit from these categories of information. Poor people are therefore in most cases marginalised and even excluded from the digitised world economy which is based on access to and use of information. Thus, the argument goes, ICT has accelerated the production and distribution of information, but at the same time has exacerbated the gap between those who have access to and use of information and those who do not.

There are a number of institutions and researchers that emphasise this divide based on the connectivity gap. The Administrative Committee on Coordination (ACC) of the United Nations (1997) views, for example, the lack of access to modern ICT in the developing countries as one of the main causes contributing to the situation of information poverty. The Organisation for Economic Co-operation and Development (OECD) also defines the digital divide as a gap between those who have the financial and other material means to access modern ICT and those who do not (2001). The

influential Gartner Group (2001), in a report entitled *The Digital Divide and the American Society*, argues that there is a causal relationship between the socio-economic status of people and their inability to participate in the digital economy. The International Federation of Library Associations and Institutions (IFLA), by means of its Social Responsibilities Discussion Group, also emphasised that the "economically disadvantaged populations of the developed countries are the information poor because, amongst others, they do not have the material means to afford modern ICTs" (Kagan, 1999). Researchers such as Buckley (1987), Doctor (1991), O'Neill (1999) and Heeks (1999) are of the same opinion. I quote a few of their most important comments. Buckley (1987:47) is of opinion that the lack of access to information technology, and in particular computers, is one of the major contributing factors to information poverty and he argues that "…people without computers and access to communication lines will be the information poor in the future unless other avenues for access are provided by libraries". According to Heeks (1999:5): "…new communication technologies are revolutionising access to information – but the revolution is likely to reach everyone but the poor". O'Neill (1999:3) argues that access to modern ICTs is limited to the so-called information elites which translates according to him to the wealthy.

4.2.2.2 Content/access approach to information poverty

The content/access approach reflects the reality characteristics of information. According to this view the unavailability or scarcity of usable information and high quality information, as well as deficient access of this information needed for development, underlie the genesis and roots of information poverty (Haywood, 1995; Aguolu, 1997 and Norris, 2001). In the same line of argument scholars such as Schement (1995) and Lievrouw (2000) make a strong case that approaches to finding solutions for information inequalities must largely be based on information content issues.

According to Aguolu (1997) access to relevant and usable information is a prerequisite for becoming part of the information society. He argues that becoming part of the information society will remain a myth for most of the developing countries until these societies overcome the following prevailing obstacles: a high rate of illiteracy, unawareness of the relevance of quality information, overall poverty as well as a lack of infrastructural facilities.

Burgelman *et al.*, (1998) is of opinion that the divide between information-rich and information-poor communities is "more than just digital" – it is according to these authors also related to the affordability, availability and suitability of the information itself (content). This approach reflects also the relationship between poverty and ability to access usable content. Lipinski (1999), in his discussion on information poverty, argues for example that the un-affordability of legal information to poor people is a form of information poverty.

Schiller (1983, 1984, 1991) adds another dimension to this content/access approach to information poverty. According to him there exists, what he refers to as an "information gap" between those who are educated and politically and socio-economically privileged, and those at the bottom of the class system – the uneducated, the marginalised and the poor. In, what he refers to as the "pay-per society" the socio-economically and educationally privileged have access to sophisticated information systems, and have the means and skills to access and benefit from valuable information. However, the underprivileged are exposed to less valuable information from which little socio-economic and political benefit can be derived.

Habermas (1989), the German philosopher, can also be seen as an exponent of this content/access approach. He expresses his doubt and scepticism regarding the quality of information that is currently made available in the public sphere. According to him the information that is made available to the citizenry is inadequate, not always reliable and even irrelevant. According to Harbermas the available information in the public sphere is managed and presented in such a manner that it only favours certain role players such as politicians. He argues that this undermines the democratic process in society.

Both the World Summits on the Information Society (WSIS) (2004, 2005) focused on the ability of all to participate in the information society and to benefit from information and knowledge sharing and reflect therefore this approach. The first principle proposed by the WSIS reads as follows: "A people-centred, inclusive Information Society where everyone can create, access, utilise and share information and knowledge, enabling individuals, communities and people[s] to achieve their full potential and improve their quality of life in a sustainable manner" (United Nations Libraries and the Information Society, 2003:1). In the WSIS Draft Declaration of Principles it is also recognised that "technology alone cannot solve any political and

social problems. ICTs should therefore be regarded as a tool and not an end in themselves" (World Summit on the Information Society, 2003).

The right of access to relevant and usable content is also strongly propagated by IFLA. According to IFLA, libraries are key players in fostering the information society and in bridging the so-called digital divide. The main role of libraries is according to IFLA to guarantee access to information. "…libraries and information services are key actors in providing unhindered access to essential information for economic and cultural advance. In doing so, they contribute effectively to the development and maintenance of intellectual freedom, safeguarding democratic values and universal civil rights. They encourage social inclusion, by striving to serve all those in their user communities regardless of age, gender, economic or employment status, literacy or technical skills, cultural or ethnic origin, religious or political beliefs, sexual orientation and physical or mental ability. The communities they serve may be geographically based or, increasingly, linked only by technology and shared interests" (World Summit on the Information Society, 2003).

4.2.2.3 Human approach to information poverty

Arguing from the human-related characteristics of information, the human approach to information poverty is not based on a wealth/poverty metaphor, but is based on and represents rather a hermeneutical view of information (Britz, 2004). According to this view information is seen as a subjective phenomenon and is viewed as a social construct that enables human understanding, interpretation, decision-making and problem solving. As such it is grounded in a phenomenological and constructivist view of information (Lievrouw & Farb, 2003:516).

The core argument is that access to information alone is not enough. People must also have the ability to benefit from the use of the information that has been accessed. Doctor (1991:217) articulates this very well when he argues that, we need a "right of access" in a broader sense, as a "right to benefit from access". This ability to benefit from access to information is co-determined by the level of education, skills, experience and other contextual factors. Sawhney (2000:162) captures the essence of this point of view when he remarks: "Information is not like food or energy of which everybody needs a bare minimum (an information ration of sorts) in order to survive.

Information only has value when a recipient has some need for it and the capacity to process it. Otherwise information is a resource that is of no use".

Other related views include those of Akhtar and Melessee (1994:314), who see the problem of information poverty as an extremely complex one that encompasses factors such as attitudes, managerial skills and finances: "The general lack of appreciation of the role of information, the almost non-existent national information policies and the recurrent, inadequate financial resources allocated to information systems and networks development and maintenance have severely deterred the use of information to solve Africa's socio-economic problems". Chatman (1996), who did a study on the information worlds of poor people and elderly women, found that their social and cultural norms influenced the way in which they access and use information and that this contributed to their situation of information poverty.

Fahey (2003), and Nath (2001) reflect also this approach to information poverty and relate it to the inability of people to benefit from the use of information. Nath (2001) refers to this as a problem of the mind, and he argues that due to a lack of proper education, many developing countries have an inability to "recognise the knowledge they possess, put a value to it and use the power of knowledge to their growth". In the same line of argument Odasz (in Cronin, 1992:32) defines information poverty as "[n]ot knowing what options exist, being an 'information have-not', [who] threatens to create a class of electronically colonised infopoor techno-peasants".

Tapscott (1995), Ponelis (1998), Mosco (2000) and Warschauer (2003) link information poverty directly to a lack of education. Warschauer argues that we must rethink and re-evaluate the so-called digital divide. He argues that modern ICT is imbedded in a "complex array of factors encompassing physical, digital, human and social resources and content". He therefore prefers to call the current information based divide a literacy divide where literacy is understood as a "set of social practices rather than a narrow cognitive skill" (2003). Tapscott (1995:294) emphasises the importance of education, which according to him must be seen as central to addressing the problem of information poverty. Ponelis (1998) defines the information poor as those who lack information (literacy) skills such as the ability to locate data leading to information, choose from a variety of sources, analyse and interpret what has been gathered for relevancy and accuracy, as well as the

ability to discriminate between sources of information. Mosco (2000:1) comments that access to information should be much more that just hardware and software. "In a deeper sense, access requires a set of capabilities, intellectual, social and cultural, from basic literacy to higher education, that are necessary to make effective use of the Information Highway".

The United Nations' Educational, Scientific and Cultural Organization (UNESCO) also strongly supports the idea that education can solve the problem of the digital divide and the information poverty. In a recent document, *Education in and for the Information Society* (2003), UNESCO prefers to use and promote the notion of "knowledge societies" rather than information societies, thereby emphasising the importance of education in the information era.

4.2.2.4 Related views on and references to information poverty

Related views on and references to information poverty can be summarised as follows:

- Lievrouw & Farb, (2003) define the gap between the information rich and information poor as one of "information inequities". These authors distinguish between a vertical or hierarchical perspective and a horizontal or heterarchical perspective. The vertical perspective represents an approach where access and use of information is seen as functions of individual and group demographics. According to this approach information inequality is determined by the socio-economic status of people; and greater equality of information access and use can be achieved by a more even and fair distribution of information in the marketplace. The horizontal perspective on the other hand is based on the point of view that individuals and groups with similar economic and social traits may have different experiences regarding access, use and needs of information. According to this approach the focus in the fair distribution of information should rather be on the real needs of individuals and the value of the information.
- Information poverty is sometimes replaced by the notion of a widening gap between societies and nations. Steele-Vivas (1996:160) describes this gap as follows: "... we [Americans] face a world in which we are allowing technology and limited policy understanding to create very significant masses of dispossessed and alienated

populations – including sizeable elements within our own borders" . In the same vein, Broadbent (1992:194) argues that "[t]here is, therefore, significant evidence of the widening gap between richer and poorer countries and a growing dependent relationship of the poorer on the richer for new knowledge". In a previous article (1990:206) he refers to "... a growing gap between the North and the South, that is, those with access to information versus those who lack it. This is commonly referred to as the information gap, which is growing at an exponential rate". Broadbent argues that this is the start of a dependency relationship which is particularly introduction of new ICTs and the related problem of accessing and sharing of information.

- The concept "media gap" is also used to identify and describe the digital divide and the gap between the information rich and information poor. Agrawal, director of the Taleem Research Foundation, argues for example that the development of modern ICT has divided the world in the media-rich and the media- poor societies (Durham, 1996:33).
- Chatman (1996) points out that information poverty differs from economic poverty. She (1996:194) emphasises the fact that information is a rather "complex social and cultural phenomenon" and that it cannot *per se* be equated to an economic form of poverty. She further states, in the same article (1996:195), that she was "...influenced by a debate in which information poverty and economic poverty were interchangeable conditions of need. After systematically examining this relationship, however, I cannot support this argument".
- Some authors are of the opinion that information poverty is a geographic occurrence on an international, national as well as regional scale (Haywood, 1995; Chatman, 1996, Braman, 1998). Castells (1989, 1994) would even refer to informational cities, which are marked by social disparities. The disparity lies between those who have access to information and have the skills and abilities to process information versus those who do not have access to information or the necessary skills to process and benefit from it.
- There is also the view that uneven distribution of and access to information result in certain power relations. Giddens (1985, 1991) and Foucault (1977) are two important exponents of this view. Giddens is of the opinion that the "information society" is nothing else than a controlled society whereby the nation state uses modern ICT to ensure power and control. This is among others achieved by surveillance. Foucault (1977) refers to the surveillance of people as

the asymmetric relationship between those who have access to information about individuals versus those who do not know that they are being observed. He uses the notion *panopticon* to describe this relationship – a metaphor that he borrowed from the British philosopher Jeremy Bentham, who used it to refer to the architectural design whereby wardens could observe prisoners who inhabited a separate, mostly illuminated cell. According to Foucault people are today observed in the same manner with modern panopticon technologies; and those being observed do not communicate with others who are being observed and cannot see who is doing the observation. This is the so-called "disciplinary society".

4.3 Conclusion

The variety of definitions above clearly indicates that the concept of information poverty is used pragmatically and formulated from different perspectives. Important aspects that deserve emphasis are the fact that information poverty is related to the inaccessibility of information; it is co-determined by the absence of a well-developed information infrastructure; it is closely related to literacy levels, particularly information literacy; and is further determined by attitude/approach to information and the value linked to it. Information poverty is a global phenomenon that can vary from context to context. Finally, it is clear that information poverty is not purely an economic phenomenon but can be linked to the cultural and social spheres of society.

Information poverty is chronic and long-lived. It is furthermore an instrumental form of poverty because it can affect all aspects of people's lives. In addition, it is difficult to quantify and measure statistically – for instance, how should one measure the human ability to transform observed information into meaningful knowledge?

4.4 Own description of information poverty

I structured my own description of information poverty in the following manner: Firstly a short summary is given of the main elements of information poverty as described in the literature overview. Secondly, the main characteristics of information that have a bearing on information poverty are highlighted. In the following part the ideal information-rich society is described and following from this a definition of information

poverty is presented. Based on this definition, I will analyse the following aspects of information poverty:

- different forms of information poverty;
- different contexts of information poverty;
- measuring information poverty and
- the main reasons for information poverty.

The reasons for information poverty are dealt with in more detail, because the thesis deals with social justice and information poverty. The different reasons that contribute to information poverty emphasise the fact that information poverty is a serious moral concern.

4.4.1 Main variables of information poverty

From the above descriptions it is clear that the concept of information poverty is used pragmatically and is formulated from different, but interrelated perspectives. I re-emphasise again the most important elements of information poverty is. Information poverty is:

- related to the inaccessibility of quality, relevant and suitable information;
- co-determined by the absence of a well-developed, well maintained and user-friendly information infrastructure;
- closely linked to the level of education and literacy, particularly information literacy;
- determined by the attitude/approach towards information and the use thereof as well as the understanding of the value that can be attributed to it;
- a global phenomenon, but can also occur within the same community and context;
- related to a lack of material and other means to access information; and
- not only an economic occurrence, but has an important bearing on the cultural, political and social spheres of society (Britz, 2004:197).

4.4.2 Main characteristics of information and their relationship to information poverty

In an attempt to define information poverty the following information-related characteristics, which I have addressed in Chapter 3, should also be borne in mind that (see 3.6):

- information is the most important and essential resource needed to facilitate the possibility to satisfy all human needs;
- without access to information pertaining to resources needed it is impossible to access and utilise other resources and;
- without access to relevant and usable information, decision-making is impossible and most human needs cannot be effectively addressed.

Information is instrumental and fundamental to all human activities. It can therefore be stated that without access to and use of relevant and essential information, individuals, societies and nations will be marginalized and exposed to different levels of poverty.

The second important variable relates to the fact that the availability of, and access to information, is not enough in itself. Availability and access also imply accessibility and usability. People need to be able to put information to use and to benefit from it. I elaborated extensively on this relationship under 3.6.3 – the relationship between humans and information.

4.4.3 The ideal information-rich society

I also based my deliberation on information poverty on a hypothetical ideal information-rich society. I have presented the main findings of this ideal information society at an international conference in Germany that was organized by the International Center for Information Ethics (see bibliography). This presentation will be published as a chapter in a book. This approach has certain advantages. As a methodological framework it makes it possible to:

- identify all the important variables that contribute to information wealth and information poverty;
- determine the various levels, degrees and manifestations of information poverty;
- identify criteria that can be used to measure information poverty;
- identify variables that contribute to information poverty;
- formulate policies based on the different variables that contribute to information poverty, to use for alleviating information poverty.

4.4.3.1 Description of the ideal information-rich society

This hypothetical information-rich society closely correlates with my own approach to information as described in the previous chapter. It is based on the three core variables of the information model, *viz.*: objects in reality, human-related characteristics of information, and the carrier-related characteristics. A schematic representation of the ideal information-rich society is given in Fig. 4.

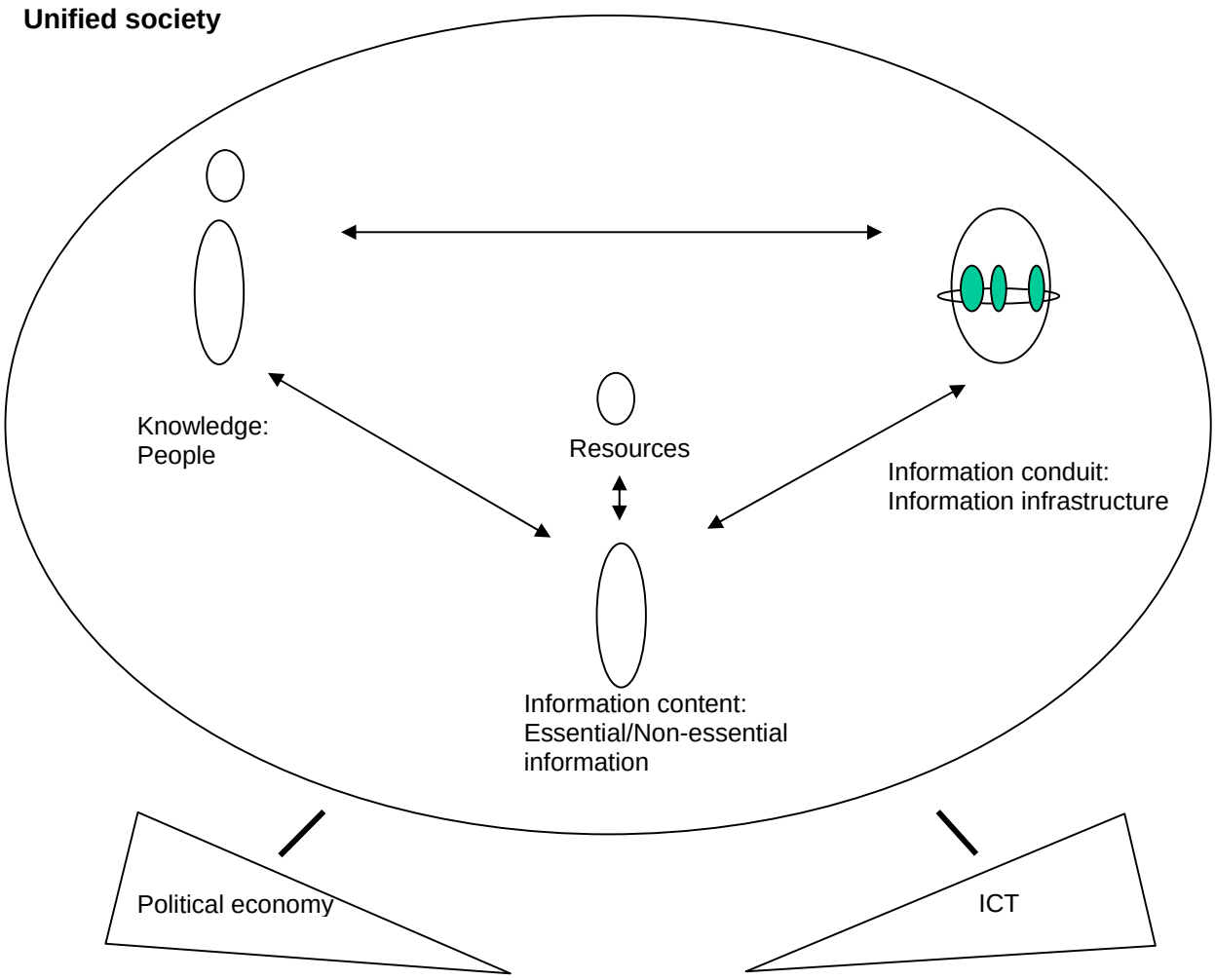

Figure 4: The ideal information-rich society

The model can be described as follows:

4.4.3.1.1 Unified society, political economy and ICT

These three variables are related to the macro environment of the hypothetical information-rich society. It can be explained as follows: an information-rich society is unified and people live in a closed and shared socio-cultural framework. In an ideal information-rich society, cultural values are shared and everyone speaks the same language, which facilitates communication and interpretation. The political economy is fair and supported by a broad moral consensus by society. Resources and products (including information) are distributed fairly based on merit, acquired rights and basic needs. In other words, there is no alien political economy enforced on society from outside. The ICT used for communication is historically and technologically rooted in society. People grow up with it and just like the political economy, it is not alien in respect of history or usage.

4.4.3.1.2 Knowledge/People

The knowledge/people variable of an information-rich society is closely linked to the human-connected characteristics of information, and is related to people's intelligence and the ability to assign the original intended meaning to information, apply it and obtain benefits from it. In this non-existent ideal information-rich society people as carriers of knowledge, possess the following characteristics:

- High levels of intelligence. In the ideal society all people have the intelligent ability to transform information into useful knowledge and to apply it, as well as to benefit from it.
- Literacy, and specifically information literacy. Those in the ideal situation are not merely intelligent. They are also literate, and specifically information-literate. In an information-rich environment people are aware of the value of information and they know where to obtain the information they need, how to retrieve it and use it effectively. They have, as Boon (1992: 32) says: "…an awareness of the importance of information in everyday life, and a facility in obtaining, evaluating and using it for a wide range of work purposes". Information-literate people are in other words able "…to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information. Ultimately, information-

literate people are those who have learned how to learn. They know how to learn because they know how knowledge is organized, how to find information and how to use information in a way that others can learn from them" (Foster, 1993:344-345). The ideal situation is therefore one where individuals are able to formulate their own information needs, have the ability to obtain the needed information and to evaluate it, cognitively process it so that it can be interpreted meaningfully and applied. The information obtained thus is then effectively communicated.

- ICT literacy. Although ICT literacy is normally regarded as part of information literacy, it is discussed separately in this section. The distinction can be explained as follows: the technology used to gain access to information has developed to such an extent that it may be regarded as a separate skill which individuals need for becoming really information-literate. Although ICT literacy cannot be separated from information literacy, it can be analysed separately. In an ideal information-rich society individuals have the ability of mastering and effectively using the technology which offers access to information. Individuals thus possess the knowledge to use technology to gain access to information and knowledge.

4.4.3.1.3 Information content/essential and non-essential information

Another characteristic of the ideal information-rich society is the fact that there is no shortage of essential and non-essential information. This information is created locally by means of experience, observation and interaction with the environment. It is, in other words, knowledge that is unique and understandable.

The value of this indigenous knowledge can be found in the fact that it is used to satisfy all information-related needs, such as decision-making, problem solving and management, and the use of resources.

Although essential information as a concept has been discussed in the previous chapter it is important, for the logical flow of the argument, to reiterate what is meant by essential information. By essential information is meant that information that is required to survive and develop. This includes information related to the basic minimum needs of humanity, as well as information tools for trade and economic development – information essential to the development of capital generation and the necessary

infrastructure to support it, which includes among others backbone industries, basic science, and survival services in health, education, welfare, agriculture and labour. As such, essential information is regarded as common goods from which all in this ideal society have to benefit.

4.4.3.1.4 Information content and resources

The ideal society is not only characterised by the availability of sufficient resources for fulfilling human needs; there also exists a special relationship between these resources and the information that relates to them. This relationship is connected to the reality-connected characteristics of information, which can be explained as follows: the availability and use of these resources depend on the availability, accessibility and usefulness of the information about them. Without this availability, accessibility and usefulness of information, resources cannot be exploited and used. In an information-rich society, the information that relates to resources is unbundled and accessible to people. Correct unbundling of information, also in terms of the ability of the user to access and use the information, therefore means that resources are more accessible and useful. In practice this means that people know where to obtain water and, if required, have the knowledge of how to purify it so that it is suitable for human use.

4.4.3.1.5 Information carrier/Information infrastructure

This characteristic of an information society is based on the carrier-connected characteristics of information and relates to the way in which information products and services in the market are processed, packaged and distributed. In an ideal information-rich society the information infrastructure is well developed and all important information is made available in an affordable manner through information producers and distributors. Individuals also have the required information skills to obtain access to the information as it has been retrieved. The effective and efficient flow of information is regulated by a well-designed information policy in which the social, economic and moral rights of the users, creators and distributors of information are protected fairly.

Description	Characteristic
A homogenous society populated by intelligent people who are aware of the value of information. As generators of knowledge, information needs are analysed correctly. People know where to find information and how to retrieve, use and correctly apply it.	Human-related characteristic of information
The production, distribution and use of information are made possible by a well-developed information infrastructure.	Carrier-connected characteristic of information
Enough essential and non-essential information is available to supply all information-related needs.	Content-related characteristic of information
Other resources that are needed to satisfy human needs are accessible because the information which relates to them has been unbundled.	Reality-related characteristic of information

Table 1: The ideal information rich society

4.4.4 Definition of information poverty

Using this ideal information-rich society as point of departure, the extremely information-poor society can be described as follows:

> The situation in which individuals and communities, within a given context, do not have the requisite skills, abilities or material means to obtain efficient access to information, interpret it and apply it appropriately. It is further characterised by a lack of essential information and a poorly developed information infrastructure. Resources needed to satisfy human needs are in most cases inaccessible because the information about these resources are not unbundled and therefore not available to humans to use to gain access to these resources (Britz, 2004: 199).

The information capital in an information-poor society therefore has the following characteristics:

- a lack of access to essential information, including access to information which has a bearing on those resources needed to satisfy needs;
- a lack of a well-developed, familiar and well-maintained information infrastructure;
- a lack of financial capital to pay for information;
- a lack of the technical and other abilities to access information and
- a lack of an intellectual capacity to filter, evaluate and benefit from information (Britz, 2004:199).

As such information poverty has an overall impact on the development of people in nearly all spheres of life.

4.4.5 The relationship between information poverty and economic poverty

Based on this description of information poverty it is clear that there is a close relationship between information poverty and economic poverty. This relationship can be explained as follows: Information is instrumental in all human activities (see Chapter 3). People cannot satisfy their human needs without access to information that pertains to resources, for example, food, water and housing needed. However, access to information and the resources which have a bearing on the information alone is not enough. People also need to know how to apply their knowledge and use the resources to satisfy their needs.

Based on this discussion I propose that economic poverty should be redefined as: “The state of a person with insufficient resources, including information, as well as the inability to know how to use and add value to the resources to satisfy needs”.

4.4.6 Degrees of information poverty

Not all of the factors that create a situation of information poverty need to be present to create a situation of information poverty. Information poverty is relative in nature and different degrees of information poverty can be distinguished. For example, a society can be highly educated, and have access to the Internet, but if its members cannot speak or understand English, such a society might be regarded in a specific context as information-poor due to the fact that it does not have access to the bulk of information that is available on the Internet.

Also, a society might have a wonderful information infrastructure including computers, free access to the Internet as well as trained people to update and maintain the technology. As an information society it might be regarded as information-rich in so far as its members have access to the best information infrastructure. However, if individuals are un-educated and by implication illiterate and/or information illiterate, access to such a well-developed information infrastructure is of no or little use. The same society can therefore, from a knowledge perspective, be judged as information-poor.

4.4.7 Contexts of information poverty

4.4.7.1 Individual information context as a determined of information poverty

Information poverty is co-determined by the context within which individuals find themselves. Information contexts can include the messages and symbols which a person encounters through conversations and interaction with others through a variety of media. The implication might be that two different people, sharing the same physical space and context, might have different interpretations understanding of the same information. This is possible because each individual has a unique experience and knowledge base to engage in the hermeneutical process of understanding and applying knowledge. The implications are clear: The one person, sharing the same information context than another person can be information-rich and will be able to assign appropriate meaning to information. Another person in the same context might be information-poor due to the inability to assign appropriate meaning to the information within the given context. This difference in information context can be explained with the following practical example: A well-educated person from New York City would, for example, have difficulty assigning substantive meaning to information if this person finds him-/herself in a remote area in Asia. This might be due to a lack of access to and understanding of the local language and/or meanings that are assigned to symbols used by the local people. Chatman (1996) refers to this inability to understand and apply this local information of inhabitants as the difference between “insiders” and “outsiders”. The insiders share a communal culture, information and knowledge base, as well as similar set of symbols. These social networks as well as the social capital that these local people confer on one another are powerful information resources within such a society. The outsiders are mostly excluded from these social networks

and are therefore, in terms of understanding and applying of local information, considered to be information-poor in this particular context.

It is therefore possible that outsiders can, based on this form of information poverty, experience some form of self-alienation since the outsider is prevented from using his/her own style and method to understand and apply the correct meaning to perceived information in this new and strange environment. Effective social interaction, based on the contextual social networks, is therefore arguably not possible within an unfamiliar information context.

4.4.7.2 Information context of communities/societies as a determinator of information poverty

This form of information poverty and alienation is unfortunately not limited to individuals only, but it also affects nations and communities within nations. It can therefore be argued that globalisation, which is underpinned by modern ICT, is one of the biggest causes of this form of contextual information poverty in particularly the developing nations and poor communities. This is specifically true of those nations that are not fully part of the mainstream of globalisation in which the *lingua franca* is English and where the technotalk related to ICT is not used.

The best way to explain this claim is as follows: The use of modern ICT, with it own "language", plus English as the dominant language of economic interaction, creates a new international standard for economic activities. This new international "English – based information context", driven by a sophisticated, but mostly foreign information infrastructure, is forced, in a manner of speaking, on many of the developing nations in the world. Consequently these countries are alienated from their own economic processes, familiar forms of communication, as well as the local and indigenous information contexts. Thus, not only is self-alienation strengthened but new asymmetric information power relationships are also created since these nations are increasingly dependent on the information-rich nations and multi-national corporations for access to and interpretation of relevant and essential information that is needed for development. According to Rose (2005) this situation creates "soft power" and an asymmetric relationship of understanding.

A primary underlying cause of this dependence and self-alienation lies in many cases in an inability by these nations to self-appropriate modern ICT (Heeks, 1999:18). It is important to stress that fact that this lack of self-appropriation lies deeper than just "pressing the right buttons". It is in essence, as I have argued earlier, a lack of a hermeneutic process within which the "language" of modern ICT must be understood in order to obtain contextual functionality and application. This lack of understanding often leads to a form of social exclusion and marginalisation. Thus Robins and Webster (1999:74) correctly remark that "…new technology is a mystery, and it remains a mystery even when its technical functions are explained in simplified terms, because its genesis – its social history – is ignored. It comes to native people without history as an unstoppable force. These people only understand that they have to change their whole way of life".

4.4.8 Qualitative and quantitative indicators of information poverty

To understand the true complexity of information poverty, it is important to address the indicators, qualitative as well as quantitative, that are used to measure information poverty. At the same time, however, one should bear in mind that the quantitative and qualitative indicators of information poverty have significant limitations. Statistical measures can be misleading and their interpretations can be one-sided. It is also very difficult to describe the true perceptions of information-poor people.

Within the context of these limitations, it is nevertheless important to discuss the quantitative and qualitative indicators of information poverty. They offer useful insights into the real complexity of information poverty, the various reasons for information poverty and the moral implications thereof. Alcock's (1997) method is preferred, being a combination of quantitative measurement and qualitative description of information poverty. As Lötter (2000:107) describes it: "Qualitative indicators make dry statistics vivid and insightful."

4.4.8.1 Quantitative indicators of information poverty

It has become fairly popular to measure information poverty, expressed as the digital divide, statistically. The World Bank (World Bank Reports) and the United Nations (Human Development Reports), for example, regularly publish comparative statistics regarding the digital divide. Indicators used include the number of telephone lines per 1000 people, access to the Internet, literacy rate, access to cable TV, number of personal computers in

homes and number of cellular phones *(The Global Information Technology Report*, 2003/2004). These statistics, as a valid quantitative measurement, are also used in policy formulation by countries and world bodies such as the World Bank and the UN. However, as I have argued, statistical measurements have certain important limitations. Statistics cannot measure quantitative factors that contribute to a situation of information poverty, such as attitudes towards information and levels of intelligence. Mansell and Wehn (1998:34-39) tried to bridge the qualitative and quantitative gap by using the so-called INEXSK approach. It measures Infrastructure, Experience, SKills and KNowledge. INEXSK is a footprint analysis, as it measures knowledge societies against a so-called "ideal knowledge indicator" .

Based on Mansell and Wehn's approach it is possible to identify two important indicators that can be quantified. They are access to the Internet and level of literacy. These two factors will be briefly dealt with and used as quantitative indicators to illustrate the serious problem of the divide between those who have access to information and those who do not.

According to a World Bank report (1998/99), one third of the world's population is illiterate. UNESCO confirmed these figures in 2000. The largest percentage of illiterates live in South Asia (45%), Sub-Saharan Africa (40%), the Arab states and North Africa (40%). UNESCO furthermore found that women comprise the majority of these populations.

Access to ICT (more specifically the Internet) also differs dramatically between developed and developing countries. Recent statistics regarding access to the Internet are listed in table 2.

Continent	*Country*	*Percentage of population with Internet access*
Africa	South Africa	7
	Namibia	2.5
	Kenya	1.6
Asia-Pacific	China	3.6
	India	0.67
	Australia	54
	South Korea	54
Latin America	Chile	20
	Argentina	10
	Brazil	8
North America and Europe	Sweden	68
	Denmark	63
	United States of America	59
	Canada	49

Table 2: Percentage of population with access to the Internet by country (2004)[2]

Africa, which represents an eighth of the world's population, can surely be considered from a statistical perspective, as the poorest continent when it comes to connectivity and the ability to participate in the global digital economy. In 1998, Africa accounted for 2% of the world's telephone lines and even less than 2% when access to and use of the Internet is considered (Forging, 1998:1-8). This statistic has not changed dramatically over the past eight years. According to the Human Development Report of the UN (2001) only 4.2 % of the population in the sub-Saharan Africa region have access to a telephone, 1.1% use personal computers and 0.8% access the Internet.

From these statistics it is clear that the largest part of the world's population does not have access to ICT and more specifically the Internet, and is therefore excluded from primary economic activities. Although primarily a form of economic poverty, this division between the connected and unconnected has an impact on the cultural, social and political life of countries and communities (Fahey 2003:1). It frustrates development,

[2] These statistics are based on the CIA's World Factbook and the Neilson//NetRatings

marginalises countries and communities, breeds a new form of dependence and contributes to the cycle of poverty.

The UN, the World Bank and various other international organisations such as, for example, the Information Poverty Research Institute based in the US, in developed and developing countries alike are concerned about this growing digital divide. Various initiatives, including attempts by the World Bank to connect Africa to the Internet, were launched to address and solve the digital divide. The UN, in co-operation with the International Telecommunication Union (ITU) hosted the World Summit on the Information Society (WSIS) in December 2003 in Geneva, with a follow-up conference which took place in 2005 in Tunisia. On the agenda, amongst others, is how to find solutions to the problem of connectivity in the world. In Chapter 6 I will elaborate on some initiatives in Africa to connect the continent to modern ICT.

As has been indicated, information poverty is not only about statistics; although ICT has played a dominant role in dividing the world between the information haves and have-nots, and should therefore not be underestimated, information poverty is not restricted or limited to a technology/digital divide only. The information divide is not limited to the "technology insiders" and "technology outsiders" of cyberspace (Floridi, 2001). As I have argued in the introduction, it is a much more complex phenomenon including issues such as socio-cultural and language diversity, different levels of education as well as the ability/inability to access, use and benefit from information.

4.4.8.2 Qualitative indicators of information poverty

To measure information poverty qualitatively is not easy. One has to interpret and construct the live experiences of information users taking into consideration their ontology, in other words the information user's perceptions regarding reality as well as epistemology by which I mean the information user's perception of her/his own position in relation to reality (Schrink, 1998:240).

These life experiences, which form the basis of the qualitative measurement of information poverty, have a bearing on the following information-related behaviours:

- how people value information;
- how they react to information;
- the ability to understand their information needs;
- to know where and from whom to obtain needed information;
- the ability to evaluate information and to put it into use effectively; and
- the ability to communicate and share information.

Based on these information-related behaviours it is possible to identify the following indicators that can be used as criteria to qualitatively measure information poverty.

4.4.8.2.1 Knowledge undiscovered: Not to know what is not known

The first and probably the most difficult qualitative measurement of information poverty relates to the question of the extent to which people know what they do not know. Not to know what you do not know could probably be regarded as one of the worst forms of ignorance and by implication also as the worst degree of information poverty. The reasons for this are fairly obvious. When someone does not know what he/she does not know, this means that such a person is not only restricted to "that which is known", but also does not have the ability to discover what can potentially be known.

There are a number of reasons for this knowledge stagnation. The main reasons follow:

- A lack of intelligence. This can be regarded as the most basic form of knowledge stagnation. However, inherent ignorance owing to a lack of intellect is difficult to measure and also hard to alleviate.
- A lack of education. Intelligent people can also lack the ability of not knowing what they do not know. This can be ascribed to a total lack of education or a lack of knowledge about a specific subject. For instance, when someone who has a doctorate in theology but lacks medical knowledge pays a visit to her medical practitioner, she may not in all cases know what she does not know.
- Ignorance in a specific context. This form of knowledge ignorance is closely related to the previous type and occurs when knowledgeable people find themselves in a strange and unfamiliar environment and are not only ignorant of the meaning ascribed to certain icons, but also

> do not know which "questions to ask". Someone who lives in the US and visits a tribe of indigenous people in Namibia, will probably be ignorant of the fact that she has to report to the chief first. In all probability she will not even know that she is ignorant.

This form of information poverty can cause people to make the wrong decisions because they do not necessarily have access to the correct information. Ignorance also causes dependence, which can lead to skewed power relationships and exploitation. This can affect the dignity and self-respect of information-poor people. Ignorant people, who for a variety of reasons, do not always know what they do not know, may be typified as stupid or inferior by society. In this way, a negative self-image and self-respect is exacerbated by society. This can have a humiliating effect on ignorant people.

4.4.8.2.2 Asymmetric information relations

Asymmetric information relationships also give rise to information poverty. This concept is basically used in the economic sense (Kingma, 2001:92). It means that one group of people possesses more information in the market than another group and may use or misuse it to their advantage. Akerhof (1970) was one of the first to refer to this asymmetrical relationship. He applied it to the used-car market, saying that the seller knew much more about the condition of the vehicle than the buyer. Such situations create an asymmetrical relationship in the market, which can lead to mistrust, and an ineffective trade relationship. Levitt & Harper (2005) refer to these asymmetric information relationships as the sins of information. According to them (2005:69) "…most of them involved an expert, or a gang of experts promoting false information or hiding true information: in each case the experts were trying to keep the information as asymmetric as possible".

Although markets with such imperfect information can result in inefficiencies, people can take certain initiatives to correct these inefficiencies. In my example, this can be done by collecting more information on the second-hand car by reading consumer reports or contacting the previous owner of the car or by buying an additional warranty. Levitt & Harper (2005) argue that the Internet has succeeded to eliminate these asymmetric power relationships, because it allows people to be much more informed and to compare the different sets of information. What they however neglected to mention is the fact that many people do not

know how to use the Internet effectively for this purpose. The quality of information available on the Internet is also doubtful.

Asymmetrical information relationships do not only apply to economic trade relations. They are equally relevant and applicable to the political, social and cultural spheres of life. The choice of a life partner is in most cases based on an asymmetrical information relationship.

Apart from the ineffective trade relationships caused by asymmetrical information relationships, they can also have a negative impact on people who come off second best in such relationships. Not only is mistrust created, but they can also lead to dependency, fear and insecurity. Dependence together with mistrust and insecurity forms a combination which can affect the respect and dignity of people.

4.4.8.2.3 Information and unmet expectations

Information informs people. It keeps them abreast of a variety of objects (concrete and abstract) which relate to reality. Without information about an object in reality, a human being cannot access or use it. This can be illustrated as follows. If I do not have access to information about water which flows beneath the sand in the dry riverbed, the water will remain inaccessible to me and I will not be able to drink or use it. To reiterate my previous arguments (see Chapter 3) one could go so far as to state that water does not exist for me.

Just as the objects in reality are only accessible to people via information about such objects, access to information about an object does not necessarily guarantee access to and use of such objects. One premise is that people need to know how to apply the information correctly – for instance, I have to know how to find the water beneath the sand and how to purify it. The “use tension” between access to information and the object to which it relates has been exacerbated by the modern development of ICT. The minimisation of time and space constraints has exposed people to a far greater reality. At the same time, however, it has led to a maximisation of the inability to use the objects to which access has been gained. On the one hand, ICT may create a wonderful opportunity for poor people somewhere in Africa to gain access to the knowledge of a doctor in the Netherlands via a telecentre. Such access to medical knowledge creates certain expectations

that in many cases cannot be met because the concrete objects such as medicine and hypodermic needles are not available.

These unmet expectations lead to frustration and can cause "information wealth" (overload) to contribute to an intensification of the experience of poverty.

4.4.8.2.4 The effect of information on people

Eaton (1987:80) correctly states that information has a specific effect on people. This effect is co-determined by a person's W*eltanschauung*, his/her value system, prejudices and perceptions. Based on the work done by Farradane (1979:15) four main cognitive effects of information on people can be distinguished:

- The first one is when information has little or no effect on a person. This occurs when someone simply cannot understand the content of the information and therefore is unable to process it cognitively to broaden his/her knowledge base. Such a person is restricted to merely perceiving the information without even knowing what he does not know. Information then has no or very little value to such a person. The effect might be the frustration of "not knowing".
- Secondly, information can have a slight effect and little value adding on someone when a few additional "knowledge elements" are added to existing knowledge that a person has acquired. For example, explaining to an experienced bus driver how to operate a new radio that was installed in the bus. This example is of course based on the assumption that the bus driver had some previous experience with radios but does not fully understand how to operate this new peace of technology in his bus.
- Thirdly, information can have a confirming effect on someone's existing knowledge base. The previous example is also applicable to explain this "confirming effect on what we already know". In explaining to the bus driver how to operate the new radio, he might experience a confirmation of what he already knew about how to operate this particular radio.
- Fourthly, information can effect a total change by adding new knowledge to existing knowledge or by leading to a totally new level of knowledge which did not exist previously. The explanation of how to operate a newly installed radio in a bus to a bus driver who has no previous knowledge of a radio, nor how to operate it, serves as a good example to explain this level of knowledge adding.

Apart from these cognitive effects which information has on the knowledge levels of people, it also impacts on the affective side of people. This also relates to the four different types of effect. In this case, however, the focus is not on people's knowledge base, but on their value systems and personality. The emphasis shifts from the content of the information and its influence on what someone already knows to the affective nature of that effect. Certain religious information can for instance be ignored because it clashes with someone's views. One of the basic principles of information literacy is specifically that new information should be compared with existing knowledge and its effects on, among others, the value system of an individual determined (ALA, 1989).

Because people are involved, this means that the same information can have different effects on different people, and also that the same information may in some cases elicit different reactions from the same person under different circumstances. This obviously makes it very difficult to measure this effect.

The effect which information has on people has important implications that again underline the complexity of information poverty. For example, people may ignore important information for a variety of reasons. Neill (1995) shows how smokers tend to ignore the information that indicates the medical risks of smoking. This attitude can lead to serious medical conditions or death. Information is not only ignored, but also selected. People are inclined to use only the information that suits them (Neill, 1995:121, Montana & Charnov, 2000:333). Owing to people's assumptions and perceptions, information may be quoted and used out of context. The results can be negative and even lethal. Toffler, in his book *Power Shift* (1990), gives a whole list of examples of how information is selectively quoted and used for own gain, particularly in the political arena. The complexity of the human makeup can also cause people to believe rumours and apply them as truths in their own circumstances. One such example relates to the many rumours circulating in South Africa about cures for AIDS. One such rumour, to all accounts widely believed, is that sexual intercourse with a virgin will cure AIDS (Du Plessis, *et al*., 2006).

4.4.9 Main causes of information poverty

What causes information poverty? As has been demonstrated, information poverty is a multi-dimensional concept and as such, there is a variety of

reasons that contribute to the condition of information poverty. I will only highlight the most important causes.

4.4.9.1 Fundamental causes

One of the fundamental causes of information poverty is certainly lack of access to essential information needed for development and if available, an inability to assign appropriate meaning to it. The World Bank (1998/99:2), in particular, regards the lack of this ability to access and use essential information as one of the main causes that contributes to the situation of information poverty. In their Report on Knowledge for Development the World Bank argues that there is not only a lack of knowledge and understanding regarding economic processes themselves, for example, how to catch a fish (referred to as know-how knowledge), but also the inability to assess the value and usability of products and services. For example, information-poor people lack the ability to assess the quality of a potato. This can lead to incorrect decisions affecting the lives of people. The World Bank describes this inability as a lack of knowledge about attributes (1998/99:2). Apart from these two categories of knowledge, I argue that a third essential category, namely knowledge about knowledge must be added. Knowledge about knowledge refers to the expertise or skill (or lack thereof) required to master the information technology that enables access to the much needed information. Based on evidence provided in this thesis is it clear that most of the poor and developing communities do not have the expertise and skills to use and benefit from modern ICT. Heeks (1999:17) correctly pointed out, in his evaluation of information poverty, that poor communities do not necessarily need new information, but rather the expertise and information skills required to make existing information accessible.

Closely related to the inability to benefit from information is choice – when people choose not to learn, not to discover new knowledge. According to Jaeger and Thompson (2004:100), "…all individuals, information rich and information poor, inhabit their own small worlds. It is when one relies only on the small world for information that information poverty ensues".

IFLA (2003) is also very critical of the quality of information that is available on the Internet. According to IFLA the content of information available on the Internet and other networks "…needs to be appropriate, authentic, timely and in languages the people understand. This will require a

great deal of resources and commitment. Whilst there is a huge amount of information available on the Internet 'free' (or at least without further charge, once the connection is achieved and paid for), much of it is spurious, inaccurate, out of date, inappropriate and assessing its accuracy are skills that need to be acquired. Libraries have always considered that this is part of their core business and continue to do so in the electronic age".

Furthermore, and to reiterate an earlier point, access to information and the ability to assign the correct meaning to it does not always guarantee that the information related and problems of poor communities will be solved in a satisfactory manner. In some cases, access to relevant and useable information can even create unmet expectations. For example, there is little reward in making information on municipal services available to communities when these services cannot be provided to them. Based on the reality characteristics of information I am of opinion that it is of vital importance to ensure that the resources to which the information refers are also made available when making the information, which has a bearing on these resources, accessible to poor communities. The reason being that in most cases, information alone does not relieve poverty – the actual resource, on which the information has a bearing, must also be available and accessible and of use to satisfy needs.

4.4.9.2 Techno-economic and information infrastructural causes

4.4.9.2.1 Techno-economic causes

One of the biggest socio-economic reasons contributing to conditions of information poverty must certainly be sought in globalisation and the integration of the world's socio-economic life. The process of globalisation is driven by modern capitalism, which has migrated from a production-based economy to an information-based economy. The application of modern ICT in these different processes has also created a network of socio-economic and political relationships and is characterised by amongst others the globalisation of communications, the development of advanced information infrastructures and the globalization and integration of labour, production, services and finance (Friedman, 2005). The creators and distributors of information products and services as well as the producers of hardware and software for the information sector in the rich countries have grown exponentially to one of the largest economic sectors (Moore, 1998, Castells, 1996, Freeman & Soete, 1997, Webster, 2002, and van Audenhove, 2003).

A dominant driving force behind modern capitalism is the development of modern ICT. Van Audenhove (2003:48) mentions the development of what he refers to as "spectacular technological innovations", with specific reference to the Internet. The impact of the development of these new "spectacular" technologies can be summarised as follows:

- The introduction of new and modern ICT opens up new possibilities, of which the most important is the digitisation and accompanied manipulation of information. This has far-reaching consequences regarding the life cycle of information, in other words, the creation, duplication, capturing, organising, processing, storage and retrieval of information (see Chapter 3). The digitisation of information further allows for the first time the unbundling of information from its original physical carriers, such as objects (e.g. a house), paper and other print material in a different and unique way than previous ICT including writing and painting. Pre-digital information technologies did not have the ability to simultaneously reach million of people and allow synchronic interactivity and the customisation of needs. Due to modern ICT, digitised information has become interlinked (hypermedia), can "travel by itself" at nearly zero cost, can reach more people in an interactive way. Examples include e-mail, webcam technologies, as well as interactive TV. Modern ICT also allows for the customization of users' needs (Evans & Wurster, 1997). A good example of the ability to customize information according to user's needs is the booking of airline tickets where people can select their seats as well as meals online. There has indeed been a move from "textuality to multimediality" (Linguist, 1998:6). Modern ICT does not only allow better and more effective interactive communication between people. It has affected every industry and every service in the industrialised countries and has spread to all corners of society and the economy (Freeman & Soete, 1997; van Audenhove, 2003). According to Freeman and Soete (1997) modern ICT is fundamentally restructuring the service economy. They specifically refer to the trade-enlarging effect of ICT on services.

- An important outcome of the application of modern ICT in economic processes is the economic shift from production technology to information and more specifically knowledge technologies. Lyotard (1985) refers to this shift as the commodification of information,

while Castells (1996), Robins and Webster (1999) and Freeman and Soete (1997) all observed that knowledge has become the central notion in the new economy – which is referred to as the knowledge and/or innovation economy. In the words of van Audenhove (2003:49): "…it is clear that knowledge constitutes a central element in both the techno-economic paradigm and the information economy". The economic value of information and knowledge have been discovered. Peter Drucker (1998) also argues that knowledge has sidelined both capital and labour in terms of importance regarding production processes.

- Closely related to the knowledge economy is the so-called network economy. Capurro (2000) refers to the Italian philosopher Gianni Vattimo who argues that post-modernity has replaced the engine metaphor with the net metaphor. We live now in a web of human relations in a digital culture. Here the focus is on companies, levels of production as well as the interaction between companies (van Audenhove, 2003:58). In the network economy the focus is on the harmonisation and co-ordination of the local and the global economies (Braman, 1998:72). Firms develop networks to influence the market, introduce new products and maximise the overflow of information between firms. This led to strategic co-operation between firms. One way to do this is by means of sharing R & D resources. Van Audenhove (2003) and Freeman and Soete (1997) raise the concern that the sharing of R & D resources are mainly limited to "triad between Europe, the USA and Asia" (van Audenhove, 2003:59). Castells (1996:106) expresses also his concern that the developing regions are economically, technologically and socially marginalized and even in some cases excluded from participating in the global network economy. This trend raises important questions regarding the participation and sharing of information and knowledge by the developing nations. To quote Freeman and Soete (1997:348): "This geographically concentrated network of strategic alliances raises major issues about access for those countries/companies not belonging to the existing networks. In the absence of an international regulatory framework, it is likely that such technology networking will increase inequality of access to technology and investment. Such possibility of "exclusion" is characteristic of the process of increasing return and learning".

- Information as such has become a form of digital capital and a tradable commodity that means money and prosperity. In the words of Harris (1997:4): "…intellectual property is hot property…society now recognises that information is quickly becoming the basis for the new economy, and intellectual property is the new economy strongest currency". Schiller & Schiller (1982 & 1986), Lyotard (1985) and Branscomb (1995) also argue that information is being treated as a commodity in modern capitalism, and its availability is mostly on condition of demand and supply and that it is saleable in the marketplace.

From a techno-economic perspective it can therefore be stated that this technology-driven economic paradigm shift has led to an increasing gap between rich and poor countries, societies as well as between individuals. In this process knowledge of, access to and the availability and use of modern ICT have become some of the most important criteria and precondition for this new form of capitalism. Those who "know" and those who "don't know" are therefore categorised according to these information related criteria. Rifkin (1995:xvii) points out this distinction, stating that "…the information and telecommunication technologies and global market forces are fast polarizing the world's population into two irreconcilable and potentially warring forces – a new cosmopolitan elite of 'symbolic analysts' who control the technologies and the forces of production, and the growing number of permanently displaced workers who have little hope and even fewer prospects for meaningful employment in the new high tech global economy". This concept has contributed to the perception that communities that do not have access to modern ICT do not form part of the global information economy and are therefore regarded as information-poor.

This understanding is further strengthened by the so-called cultural imperialism, a notion popularised by Herbert Schiller (1991) in which technology as the medium has become the message (e.g. the Internet). This has resulted in the relatively cheap distribution of large quantities of information from the West to developing communities without taking into account the level of knowledge in those communities. Against the background of this cultural imperialism another perception has risen, namely that information richness is measured in terms of the accessibility of this form of mass media.

4.4.9.2.2 Information infrastructure causes

As already indicated, the backbone of an information-rich country is a well-developed and maintained information infrastructure, that is, an infrastructure that does not only enable the communication and sharing of information, but also enables the ability to participate in the global digital economic and socio-political activities. Such an information based infrastructure must allow "…the spread of national, international and genuinely global information exchanges between banks, corporations, governments, universities and voluntary bodies…" (Webster, 2002:10).

A well developed and maintained information infrastructure covers a variety of issues and ranges from the traditional provision of libraries, publishers and booksellers to the distribution of the mass media and electronic networks (e.g. the Internet), but also the emerging formulation and application of information policies on national as well as regional levels. Naisbitt (1984:28) correctly points out that "…the computer technology is to the information age what mechanization was to the industrial revolution".

The problem is of course than nearly all developing countries lack such sophisticated information infrastructures. This had dire consequences for many of these countries as they are marginalised to effectively participate in the global information-based economy. These countries are furthermore excluded from most of the global knowledge sharing. Kularatne (1997:118), in his critique on the developing world comments: "Whether a coordinated and organised national information policy exists in a country or not, there are certain fundamental inadequacies in the information infrastructure of many Third World countries". Angell (1995:10) warns that those who are missing the information superhighway are doomed to failure. He wrote: "The future is being born in the so-called information superhighways… [and] anyone [that] bypasses these highways faces ruin". Castells (1998) sees a bleak future for specifically sub-Saharan Africa. He refers to Africa's technological apartheid at the dawn of the information age because of a lack of infrastructure or human capacity to deploy and utilise technology. It is worthwhile to quote Castells (1998:95) at length:

> "Because of the inability of African countries to produce/use advanced technological equipment and know-how, their imbalance of trade becomes unsustainable, as the added value of technology – intensive goods and services – continues to increase *vis-à-vis* the value of raw materials and agricultural products, limiting their

> capacity to import inputs necessary to keep their commodity production systems in operation. It follows a downward spiral of competitiveness, as Africa becomes increasingly marginalized in the informational/global economy by the leap of technological change. The disinformation of Africa at the dawn of the Information Age may be the most lasting wound inflicted on this continent by new patterns of dependency, aggravated by the policies of the predatory state".

Even in cases where developing countries invest in modern ICT and the development of a well-equipped and maintained information infrastructure, people are in many cases still excluded from accessing most needed and relevant information. Due to the high cost of modern ICT, in particular connectivity costs, there is still this dichotomy of those who have the material means to access information and those who don't. The United Nations Development Program Report (UNDP) (1999:63) refers to this dichotomy as follows "…the network society is creating parallel communication systems: one for those with income, education and literally connections, giving plentiful information at a low cost and high speed, the other for those without connections, blocked by high barriers of time, cost and uncertainty and dependent upon outdated information".

4.4.9.2.3 Infrastructural causes

Related to the above mentioned cause is the problem of the lack of a physical infrastructure needed to support the information infrastructure. The challenging problem is that many policy makers tend to forget that this new information-based economy, which can also be referred to as a dematerialized and weightless economy, is underpinned and supported by a "materialized" and top-heavy infrastructure. Such an infrastructure includes harbours, airports, working railways, accessible roads, warehouses and physical addresses of people. The reason being that access to the "unbundled" products and services that is offered via the Internet, does not always implies access to the physical objects self. Exceptions are for example digital music and e-books. Tangible items such as medicine, vehicles, food and household items such as stoves that are bought over the Internet cannot be shipped as e-mail attachments or downloaded via websites. Delivery of these products requires a highly sophisticated and efficient physical infrastructure. A dematerialized information-based economy without a physical infrastructure to allow the delivery of the physical products is therefore of little use and, as I have explained earlier,

can even create unmet expectations. A rural healthcare worker may find wonderful information on the Internet about the prevention of a killer disease like polio, but this will be of little use if there are no roads and no vehicles to deliver the vaccines to the clinic, or if there is no working refrigerator to keep the medicine at a regulated temperature. Africa, as I will explain in the following chapter is a good case in point to illustrate this lack of a well developed and maintained physical infrastructure.

4.4.9.3 Censorship

4.4.9.3.1 Introduction

One of the cornerstones of an information-rich society is the freedom of people to have access to information as well as the ability and right to communicate their ideas – in short: the right to freedom of expression. This right is protected in most democracies and is universally recognised as a fundamental human right. Article 19 of the Universal Declaration of Human Rights of the United Nations states:

> "Everyone has the right to freedom of opinion and expression; this right includes the freedom to hold opinions without interferences and to seek, receive and impart information and ideas through any media and regardless of frontiers."

Although one certainly has the freedom of expression, there is general consensus that this freedom (as is the case with other forms of freedom) comes with certain restrictions and responsibilities, which societies have always required from their members. Some of these limitations and restrictions include hate speech, defamation, promotion of terrorism and child pornography. These limitations and restrictions are necessary and do not contribute to information poverty.

At the heart of an information-rich society lies the ability to access information. People are able to make informed choices and wise decisions that affect their lives. However, when this right of access to information (excluding the above-mentioned categories) is restricted by the government it touches on one of the cornerstones of an information-rich society. State censorship, which places restrictions on the media and on individuals to express their opinions and access the works of others, can be seen as an important contributor to information poverty.

4.4.9.3.2 Internet, censorship and information poverty

Initially it was thought that the Internet as a new form of virtual communication would allow individuals and groups around the world to communicate free from state interference. The Internet has indeed the ability to create the foundation for an information-rich society. To a certain extent this has been achieved due to the nature of the Internet. It is, for example, difficult to regulate and trace global information traffic by a government. National laws by governments do not apply internationally and currently there is no international law that really covers censorship on the Internet. It is therefore relatively easy to distribute messages through different channels and networks around the globe. Many Internet service providers (ISPs) also protect the privacy of their users (Lipinski, Buchanan & Britz, 2004). To a certain extent one can say that the Internet contributes to a society where individuals and groups have the opportunity to access information and to share their ideas. Norris (2001:6) is, for example, of the opinion that "…digital networks have the potential to broaden and enhance access to information and communications for remote rural areas and poorer neighbourhoods, to strengthen the process of democratisation under transitional regimes, and to ameliorate the endemic problems of poverty in the developing world".

However, although it is difficult to control the flow of information on the Internet, national governments still try, by means of stricter legislation to control the flow of information on the Internet. Sussman (2001) points out that the explosion of information on the Internet is tempting governments from the developed as well as developing worlds to consider restricting content on the Internet. In the words of Hamelink (2000:143) : "It should be realized that the state censorship is – despite decentralized nature of the networks – certainly possible. It is not so much the technical nature of the Net – as if often claimed – that hampers censorship, but rather the lack of international cooperation". The fact that computers, which provide access to information on the Internet, are located in physical spaces, and that they belong to individuals or companies that fall under the jurisdiction of a country makes it to a certain extent possible to control their actions. National lawmakers in many countries have designed specific legislation to restrict users from access to certain websites and also to limit the freedom of ISPs.

Examples of countries that apply strict control over ISPs and Internet users include:

- Singapore. Here the numbers of ISPs are limited and ISPs are forced, under law, to use software that filters out undesirable sites. Undesirable sites include sites that can insult the government. ISPs are considered broadcasters and as such require licenses to operate. This falls under the so-called Singapore Broadcasting Authority Class License Scheme (Hamelink, 2000: 140).
- China is another country with strict and oppressive legislation regarding ISPs and Internet users. According to the China Internet Computer Network Information Centre, all Internet connections must be made through state institutions, and information threatening the security of the state is punishable by law. All ISPs have also to register with the police. Internet users must also register and must sign a declaration that they will not visit any "illegal" sites on the Internet (Hamelink, 2000:141). The media watchdog group, Reporters without borders (RSF), in a recent report (June 2004) described China as a dictatorship which "gags the Internet". It tops the list of the most repressive countries for Internet users. According to the report China is the country with the biggest prison for "cyber-dissidents" (The Age, 2004).
- Vietnam: All ISPs have to register with the government. ISPs are viewed as broadcasters and are obligated by law to report all "illegal" trafficking of information to the government. Government officials are allowed to control and monitor all network traffic (Hamelink, 2000:142). As part of new government policy, all Internet café owners can be fined or put in jail if they allow clients to access illegal information. Illegal information includes anti-government information (USA Today, 2004).
- The African continent: In a number of democratic African countries governments control access to the Internet. This is done by allowing only one ISP which is controlled by the state. It is furthermore very expensive to access the Internet and only those who can afford it can gain access thereto. Libya, Tunisia, Sierra Leone and Sudan are amongst the top 20 countries in the world where access to the Internet is most controlled (de Beer, 2001).

4.4.9.4 Intellectual property rights (IPR) regimes

Depending on how they are interpreted and applied, IPRs can have a significant positive or negative effect on information poverty. This is because IPR regulate and control the political economics of the distribution of information products and services. To understand this impact of IPR regimes on information poverty contextually, the following preliminary remarks need to be borne in mind.

4.4.9.4.1 Introduction

Intellectual property has unique dual characteristics, namely the right to own (control) information together with the right of access thereto. These dual properties are protected in the judicial notion of intellectual property and individuals have the right to benefit from both access and control. Intellectual property systems are therefore designed to:

- protect the moral rights of the creators of intellectual property products (moral justification);
- recognise and protect the right of fair compensation for the creation and distribution of information products (economic justification) and
- enhance, to the benefit of the common good, the creation and accessibility of new knowledge (social justification) (Hamelink, 1999:158).

The historical and philosophical origins of IPR are rooted in the West. These information based rights are mainly based on the Lockean labour theory as well as the Hegelian personality theory. According to these theories individuals have property rights and, according to the proponents of intellectual property rights, these rights extend to intangible intellectual property rights (Drahos, 1997). The first IPR legislation originated in England upon adoption of the Statute of Queen Anne in 1709. Initially, the publishing industry in England was strongly monopolistic and censorship was applied. The latter was particularly at the behest of the church and the state (Miller & Davis, 2000:285-287). The Statute of Queen Anne granted more rights to authors and placed greater restrictions on the monopolistic rights of publishers. The IPR legislation of most of the former British colonies, South Africa included, is modeled on the British system. The historical development of IPR in the United States radically differs from that of Britain. In the US, the emphasis was more on the stimulation of creativity and the distribution of knowledge (Lessig, 2004). Lessig (2004), for

instance, points out that until the beginning of the twentieth century, copyright had to be specifically applied for in the US. In other words, published works were not automatically protected by copyright. In theory this philosophy still forms the cornerstone of American IPR regimes. Further on in this discussion I will show that this basic IPR philosophy is no longer applied in the US.

One also has to bear in mind that most of the non-Western cultures do not perceive intellectual property rights on the same plane as the West. In fact, there are some cultures to which ownership as known to Western traditions is antithetical. For example, most African people believe that ownership of information is rarely vested as a property right, and that it is rather a benefit that should be shared freely by the community (Britz & Lor, 2003). The People's Republic of China is another example. For cultural and historical reasons it does not recognise intellectual property in the same way as the West (Beam, 1995). Cultural and historical development is tied to Confucianism and Communism and emphasises the good of society at the expense of personal reward. It is seen as an honour to copy someone else's work (Lara, 1997). Copying is therefore not stealing. Intellectual property rights, although internationally acknowledged and regulated, are therefore still to a large extent culturally dependent and relative to the culture in which they operate. However, I will argue that the Western view tends to dominate.

Although intellectual property rights cover a wide range of information-related products, there are two areas of IPR that have a significant impact on information poverty. These are: copyright and patents. Copyright protects original works of authorship fixed in any tangible medium (Britz & Lipinski, 2001). Ideas are therefore not copyrightable. The copyrighted work must also fall into one of several categories of authorship. These are: literary, musical, dramatic, pantomime and choreographic, pictorial, graphic and sculptural, motion pictures and other audiovisual, sound recordings, and architectural. The creator is vested with certain rights, but at the same time there is a bundle of fair use rights that allows users to access and use the information product for free. Copyright can therefore be seen as a limited monopoly. Patent laws also regulate access to and use of information products. These comprise a more complex set of rules containing statement of claims regarding "things" or "objects" patented. WIPO (World Intellectual Property Organisation) defines a patent as "…a document, issued by a government office, which describes the invention and creates a

legal situation in which the patented can only be exploited (altered, used or sold) by, or with the authorisation of the patentee". Once granted, a patent endures for a number of years. In South Africa it is 20 years. As is the case with copyright, the purpose of patent is to create an incentive for knowledge creation for the benefit of society.

4.4.9.4.2 Impact and affect on information poverty

Shift towards protection of information

One of the alarming trends in IPR regimes that has a direct bearing on information poverty is the growing neglect of the original idea of IPR regimes, namely to achieve a balance between on the one hand the preserving of the information commons (access to information) and on the other hand the providing of incentives for the creators and owners of information products (ownership of information).

Access to information products and services, which is a cornerstone of an information rich society, has become more difficult – not because of cultural and social barriers, but mainly because of a stricter application of IPR regimes worldwide. There seems to be a tendency to structure IPR regimes in such a manner that they generate more income for those corporations and individuals who own and control information products (Drahos, 2003). This alarming trend must be interpreted and understood against the background of the information society in which we are living where the digital environment, with specific reference to the Internet, for the first time provides the opportunity to create an information commons where information and knowledge can be distributed to the largest number of people at about zero cost (Becker, 2003:1). The following developments in the field of IPR will prove this shift towards the ownership provision of IPR regimes:

- The rich and developed nations, in particular the European Union (EU) and the US, have taken a leadership role in the setting of international standards to ensure that IPR owners, which are mostly from these rich nations, are protected worldwide. They have also been successful in tying IPR to general trade agreements and have established a legal framework for countries around the world to upgrade their IPR regimes in accordance with these international agreements (Britz, *et al.*, 2006; Chang, 2003).

- The two key instruments used to achieve this are the World Trade Organization's (WTO) Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) which were agreed upon in 1994, and the United Nation-based World Intellectual Property Organization's (WIPO) Copyright Agreement (1996) (von Hielmcrone, 2000; Harris, 1997; Thomas & Lee, 2002).
- As an implementation of these agreements the US enacted the Digital Copyright Millennium Act (DMCA) in 1998 and it was followed in 2001 in Europe by the EU Copyright Directive.
- With these agreements the scope and duration of IPR has grown enormously. IPR related to information on the Internet is now covered together with digital rights management and the anti-circumvention laws, which enforce technical restrictions on accessing information on the Internet.
- The US and the EU have extended the post-mortem copyright from 50 to 70 years. The WIPO Copyright Treaty now includes the protection of databases that were previously considered public information.
- According to the World Bank Legal Review (Intven, 2003) the patent applications have also increased from 1.8 million in 1990 to 7.1 million in 1999. The TRIPS Agreement further allows for the patenting of life forms and pharmaceuticals and by implication the appropriation and commoditisation of indigenous knowledge (Thomas & Lee, 2002: 6-7).
- Major industries such as IBM, Microsoft and AOL-Time Warner have backed these international agreements to protect their financial interests (Thomas & Lee, 2002:6-7).

It would therefore not be an overstatement to conclude that IPR owners have a formidable set of tools at their disposal, both in terms of technology and legislation, to protect their rights worldwide.

Fair protection of intellectual property rights, within the original philosophy of IPR, is one thing. The problem arises when protection is designed in such a way that it benefits the owners and distributors of information products and services at the expense of access to essential information. Many individuals and organisations have expressed their concern and voiced their criticism against this new trend in IPR regimes. Toner (2003:7) refers to this trend as "social terror" and according to Drahos (2003:3), "…intellectual property begins to look like a game in which the rich have found ways to rob

the poor". According to Bollier (2003:1) we are moving towards market enclosure, taking information out of the public domain into the private zone. The Copy Left movement refers to the current trend as the creation of a "permission culture" (Boynton, 2004) and Lessig (2004) is advocating for an "access culture". These sentiments were echoed at the World Summit on the Information Society (WSIS Geneva 2003) and many civil society groups strongly oppose the current trend in IP and even reject the term Intellectual Property Rights, because "…the only rights associated with information and knowledge are those of owners" (Siochrú, 2003:3).

Becker (2003:1) correctly points in my view out that the future of the information society will be shaped by how the conflict is resolved between those who see information as a commodity to be sold to consumers versus those who see information as a common good that must be freely available. This shift will have a profound effect on the information poor.

Property and piracy

The shift toward the commercialisation of information is not the only reason for the stricter application of IPR. An important factor, which directly and indirectly contributes significantly to information poverty, is the enormous increase in piracy of information products worldwide. This is largely owing to the fact that digital information can be copied and distributed at almost zero cost and with the greatest of ease. Information piracy is moreover no longer limited to text-based information products, but includes all multimedia formats of information.

The financial impact of this trend on international information industries is indeed alarming and particularly affects the entertainment and software industries. For example, the US software industry counted losses of between $10 to $14 billion annually and the total retail value of pirated software was an estimated $12,2 billion in 1999. One in every three copies of business software applications in the world is illegal (Oz, 2002). Another example of this trend is given by Miaorops (2000:C11) who reports that for every $3 worth of products (patented) exported out of the US, American companies lose up to $1 to piracy. This explains, according to Miaorops (2000), why pharmaceutical companies in the US, in order to protect their intellectual property, pressure the US administration to impose stronger intellectual property legislation.

As a multi-billion dollar international industry intellectual property theft is threatening the whole information-based industry in the Western World. The damaging effect on this industry must be evaluated against the background that one third of the income of the G7 nations comes from information products and services (Gurnsey, 1995:5). In 2002 the copyright industries accounted for 5.24% of the US gross domestic product and they were bigger that all other major industry sectors. In 2002 the international loss to the US economy due to copyright piracy was an estimated $20-$22 billion globally (International Intellectual Property Alliance, 2003).

This justifies, according to the International Intellectual Property Alliance (IIPA), the call for a stricter application of IPR legislation worldwide. According to Eric Smith, the president of the IIPA (2003:1), the "… rapid growth of e-commerce and the Internet bring new opportunities and challenges, particular for these copyright industries whose products will increasingly be traded globally using the new distribution technology. Unless we safeguard the Internet from the scourge of intellectual property theft, the medium will never reach its full potential to contribute to global economic growth and cultural diversity through local creativity. We appreciate the efforts by the US government to secure ratification and full implementation of the WIPO Internet Treaties by all countries. Furthermore, governments must take actions to ensure that their enforcement regimes comply with their WTO TRIPS Agreement obligations and, use legitimate software in governmental offices".

From an information poverty perspective one can indeed ask the question: How legitimate is the case for using information piracy as a reason for a stricter application of IPR? At first glance, and based on the assumption that people have a right of ownership of information, it seems to be justified in those cases where the culprits are those who steal information to enrich themselves – in other words, when basic information needs are replaced by information greed and desires at the expense of those who create and distribute information. This argument is also used to justify the application and use of Digital Right Management (DRM) technologies to protect IPR from piracy. According to Beristain (2003:31), the "…biggest potential of this technology [DRM] is the capacity for the rights owner to manage distribution and to be able to collect royalty fees".

However, it is still an argument motivated by the ownership/economic interest underlying IPR and becomes less convincing in those cases where

poor third world countries have to "steal" essential information to survive and develop because it is too expensive in the marketplace. Siochrú (2003:3) is, for example, of the opinion that the TRIPS Agreement merely gave the IP industry a "…huge stick to wave at so-called 'pirates', and introduced a single corporate-friendly regime in IPRs". As such it seems that there is a good case to argue that the reaction of the information owners to apply stricter IPR regimes due to an increase in information piracy is not fully justified.

Intellectual property and development

I have already pointed out that information, and more specific access to essential information, is instrumental in and essential to all human development. A lack of access to information can therefore seriously hamper development and as such contributes to a situation of information poverty.

Stiglitz (2003) emphasised the fact that there can be no development without knowledge sharing and knowledge management. Knowledge enhances the return on investment and capital "provides the opportunity to make use of recently acquired knowledge" (Stiglitz, 2003:93). Development strategies therefore need a clear outline on a strategy to manage and distribute knowledge. Education, as the core of any development, and its infrastructure should therefore be one of the high priorities for successful development. As regulators of educational resources, innovation and ideas IPR policies can make a substantial difference to development. But currently not enough is happening. Scientific journals are, for example, still too expensive for academic and scientific institutions in developing nations, and Stiglitz (2003:102) correctly warns that the "excessive protection of IPRs may end this virtuous cycle of knowledge transmission and regeneration in the developing world".

There is therefore a rightful fear around the world that the shift toward a stricter application of IPR regimes will further impede development and restrain developing nations from gaining access to education and health information. It would, however, be unfair to directly accuse the two main international bodies that regulate the IPR regimes, namely the WTO and WIPO, of a lack of sensitivity to the cause of the developing nations (Britz, *et al*., 2006). There is enough evidence to suggest that both these bodies have the developing nations high on their agendas (WTO, 2003:93-100; WIPO Press Release, 1998). For example, the WTO released a special declaration at the Doha Ministerial Conference (November 2001) that the

TRIPS Agreement should not prevent member countries from taking certain measures to protect the health of their citizens. Some flexibility was also built into the agreements such as compulsory licensing (WTO, 2003: 82).

The WTO and WIPO are also committed to assisting developing nations to conform to the TRIPS and WIPO Agreements. In a joint press release, the WIPO and WTO (WTO, WIPO Press Release, 1998) explain their role in assisting developing nations: "This process involves bringing their laws on copyright, patents, trademarks and other areas of intellectual property into line with the agreement, and providing for effective enforcement of these laws in order to deal with piracy, counterfeit goods and other forms of intellectual property infringements".

However, this process is part of the problem for developing nations. According to research done by the South Centre (2002), these agreements are ultimately oriented to set up an international legal framework for a global IPR regime. This will further limit the policy space left in the hands of developing nations under the TRIPS Agreement regarding IPR issues. The project of the South Centre was funded by the United Nations Developing Programme (UNDP) and had as its aim to monitor and analyse the work of the WTO from a developing nations' perspective (South Centre, 2002).

Correa and Musungu (2002) therefore argue that the WIPO and TRIPS Agreements did not help to advance developmental goals of the developing countries. They rather strengthened the economic interest of powerful multi-national corporations and the governments that represent them. Not only do developing countries have to comply with these agreements, but the standards set in TRIPS and WIPO are far better suited to the needs of the developed nations. This has limited developing nations in developing of their own policies regarding IPR. Drahos (1997:201) reflects the same sentiment in his evaluation of the TRIPS Agreement: "TRIPS was not the product of carefully co-ordinated economic analysis. Rather it was the manifestation of rent-seeking desires of those multi-nationals that saw opportunity for themselves in redefining and globalizing intellectual property rights".

Deere (2003) also points out that in cases where developing countries, for example, resisted implementing the TRIPS agreement, developed countries, the US in particular introduced other related measures to force these

countries to increase their IPR standards and to apply it more strictly. Such measures can included economic sanctions, as well as the incorporation of additional IPR standards in regional and bilateral agreements (Britz, *et al*., 2006). Deere (2003:11) points out that such TRIPS "plus" agreements can even result in the obligation of developing countries to introduce higher IPR standards at a faster pace than TRIPS requires. This can have devastating effect on their own economic development.

This unwillingness of the developing world to adhere in full to international IPR regimes furthermore leads to the developed world's reluctance to invest and export its knowledge and information technologies (hardware and software) to those countries that do not protect their IPR (Intven, 2003). I argue that this has a severe effect, not only on development, but also on the knowledge production in these countries.

4.4.9.5 Brain draining

4.4.9.5.1 Introduction

I view brain draining or the migration of well-educated people from mostly developing countries to the developed world as a significant contributor to information poverty. It should be interpreted against the background that knowledge plays a strong central role in the techno-economic paradigm and is seen as the most important production factor in all economic spheres (Castells, 1996; van Audenhove, 2003). Freeman & Soete (1997:3) point out that "…it would not be unreasonable to regard education, research and experimental development as the basic factors in the process growth, relegating capital investment to the role of the intermediate factor". Brain draining has a serious moral, socio-political and economic effect on these nations. I will deal with the moral effect later in the thesis, but it is, for example, estimated that the monetary value of the exodus of people out of Africa exceeds the value of all the development aid that African countries have received from the developed world (Britz & Lor, 2003: 165).

4.4.9.5.2 Migration and brain draining

In the analysis of the effect of brain draining on information poverty four important facts should be born in mind (Britz & Lor, 2003).

- First, the migration of people around the world is not a new phenomenon and certainly not unique to the current era of globalisation. The movement of people has been part of human

history since the earliest times. There was a surge in the late 19th century when a large number of Europeans migrated to amongst others the US. This peak in human movement was reversed in the first half of the 20th century, partly due to the two world wars. In the last 50 years the trend has again shifted towards greater globalisation and resulted in the establishment of international organisations such as the WTO and WIPO (World Bank Briefing Papers, 2000).

- Second, and related to the first point, is the fact that it is a normal phenomenon for professional people to migrate to other countries to sharpen their skills, gain experience and build professional networks (Britz & Lor, 2003; Meyer, *et al.*, 2001).
- Third, it is a basic human right that people can move freely to wherever they want, to make a better living and to exercise their professional skills.
- Fourth, the movement of people around the world can be used to the benefit of their home countries as well as the world. There are certain prerequisites and one of them is the management of this process. In reaction to the well known drain of Indian scientists to the US Nancy Birdsall (Human Development Report, 2001), special advisor to the Administrator of the UNDP, comments: "In a global market, people with the right skills will naturally migrate to the high-tech, high wage frontier, wherever it is. But we do see signs that when countries create the right conditions – including openness to new investment and new ideas – they can recapture some of what they have lost. The Indians in Silicon Valley are an important part of Bangalore's success". South Africa and South Korean are other countries who have programs in place to encourage skilled emigrants to return.

4.4.9.5.3 Impact on developing countries

However, the alarming factor is that a large number of highly qualified people in the developing world leave their countries in search of better job opportunities and living conditions for themselves and their families. The concern is that most of them never return to their home countries. Van Audenhove (2003:58) correctly points out that it is very questionable whether developing countries under these circumstances will ever be able to bridge the, as he puts it, "knowledge gap". Meyer *et al.* (2001:316) also comment: "The migration of skilled persons contributes to the sharpening of inequalities, both between countries and within countries, that is such a characteristic feature of globalisation. At the same time, those very

inequalities as between countries, further promote and underpin the process of skill migration which responds to the growing skill wage gap as between the developed and developing world".

According to the UN Human Development Report (2001) brain draining costs the developing countries billions of dollars. During 2001 India alone had lost more that US$2 billion in human resources. This is mainly due to the migration of scientists to the US.

Africa is on the brink of a 'brain collapse'. Some of the horrific statistics provided by the International Organisation for Migration (IOM) and the UN's Economic Commission (2000) for Africa are:

- Between 1960 and 1975 an estimated 27 000 highly qualified Africans left the continent.
- This number increased to 40 000 between 1975 and 1984.
- The number doubled in 1987. It then represented 30% of the highly skilled labour force.
- Africa lost more than 60 000 professional people between 1985 and 1990 and an estimated 20 000 every year since then.

Another study by the World Bank (2002) reported that some 70 000 highly qualified African scholars and experts leave their home countries every year in order to work abroad. Africa spends an estimated US $4billion annually on recruiting some 100 000 skilled expatriates (World Markets Research Centre 2002). Although these statistics does not correctly add up in terms of numbers, it bring across a very clear message, namely that brain draining is a serious threat to the African continent.

Apart from the direct and indirect economic impact of brain draining on most of these countries, it has also a profound effect on health care – not only in terms of costs but also in terms on human resources. After a week-long visit to Southern Africa during June 2004, James Morris, the UN special envoy for humanitarian needs in Southern Africa, made the following comment based on his observations: "The number of trained health practitioners, teachers, and other professionals that are succumbing to HIV/AIDS is causing a truly extraordinary human resources vacuum in societies across the region;" and: "It is impossible to counter the crisis if people aren't on the ground to implement effective programming, or to deal

with the sick and dying, or to care for the unprecedented number of orphans and other vulnerable groups." (IRINnews.org, 2004).

4.4.9.6 Information and documentation trade

4.4.9.6.1 Introduction

Another contributing factor to information poverty, and one that is closely related to brain draining and the knowledge economy, is the international trade in information and documentation. Information and documentation trade refer to the international flow of scientific and scholarly publications. It is a known fact that only a small proportion of the world's scholarly and scientific literature that is published in high-ranking journals and indexed in key research tools originate from the developing nations (Britz & Lor, 2003; Gibbs, 1995 and de Koker, 1995).

4.4.9.6.2 Trade barriers

What causes this trend? According to Gibbs (1995) scientists from developing countries face severe obstacles when they wish to contribute to the international body of scientific and scholarly knowledge which is predominantly published in Western scientific journals.

A series of these barriers can be identified. Based on research done by Britz and Lor (2003) I summarise the most important barriers:

- Research done in the developing countries is sometimes viewed as inferior or of lesser quality. Apart from plain prejudice, some of the research undertaken is indeed of poor quality. This is among others due to poor training and/or a lack of equipment and an inability to command English.
- Poor communication between scientists in the North and the South must also bear some of the blame. The inadequate flow of scientific literature from the North to the South makes it difficult for researchers in the developing countries to reach the cutting edge of research in their fields. Access to high-quality scientific journals is also very expensive and these journals are in many cases inaccessible to researchers in developing countries.
- Much of the research done in the developing countries does not get published in the well established international academic journals. This is mainly due to a lack of access to publication media. Britz and Lor (2003) point out that some of the research might end up being

published in the grey literature and can, due to poor bibliographic control, get lost to the scientific community and not form part of the world's body of knowledge.

- Rosenberg (2002:51, 54, 55) also points out that authors in the developing world, and more specifically Africa, run into considerable difficulties when they want to publish in local journals. There are a variety of reasons. Academic journals are declining, and libraries are reluctant to subscribe to these journals because of the fact that they are poorly managed.
- Scientists from developing countries who do publish in local academic journals find that their contributions are mostly ignored by the developed world (mostly the West). Most of these journals are also not indexed in the major indexing databases. This has led to the perception that these journals are not up to standard and that the content is of a lower quality.

4.4.9.6.3 South-to-South trade

One important aspect that is sometimes overlooked is the fact that these barriers also impede the flow of knowledge between the developing countries themselves – in other words the South-to-South information trade. This is mainly because of the fact that bibliographic control in most developing countries is poorly developed (Lor & Britz, 2005). Developing countries are therefore dependent on the international indexing and abstracting services – which are mostly situated in the rich North – to retrieve and access their own body of scholarly and scientific knowledge. In many cases these publications are not indexed and are therefore lost, not only to the countries of origin, but also to their neighbours in the South and the people in the North.

4.4.9.6.4 Death of local trade

The fact that local journals in developing countries are not always well managed and not indexed in the prestigious international indexing and abstracting databases led to an inclination and even active decision of many authors in developing countries not to publish in local journals (Britz & Lor, 2003:164). This trend poses a serious threat to the survival of journals in developing countries. Fernandez (1999:23), as well as Cao and Suttmeier (2001:968), points out that this is not a new phenomenon. Scientists from the developing world prefer to publish in high ranking international journals because it is more advantageous to their own careers. I would argue that the

use of the Internet could accelerate this trend and this can in turn contribute to the disappearance of scholarly and academic publications in developing countries.

4.4.9.6.5 South-North trade: the document drain

Another significant contribution to information poverty is the so-called document drain (Limb, 2002:52). Document draining refers in this context to the initiatives by well-resourced research and other libraries in the North to purchase books, government documents, journals and other materials published in the developing world.

Britz and Lor (2003) list a number of major research libraries involved in this practice, for example, the Library of Congress; the Melville J Herskovits Library of African Studies, Northwestern University, Evanston, Illinois; the Centre for African Studies Library at Leiden University, the Netherlands; and the School of Oriental and African Studies Library, University of London, England. Specific programmes include the Co-operative Acquisitions Program of the Library of Congress, the Co-operative Africana Microfilm Project (CAMP) in the United States, and the work of the Standing Committee on Library Materials on Africa (SCOLMA) in the United Kingdom.

The implication of this trend is clear: Scholars from developing countries will find more comprehensive, better organised and better preserved collections of their own body of knowledge in these libraries that in their own countries.

Another serious and relating issue is the looting, theft and illicit sales of the body of cultural knowledge of developing countries. I refer specifically to the looting of archaeological objects, illicit sales of the works of art and the illegal trade in rare books and unique manuscripts. Various international agreements have been reached to protect the cultural properties of indigenous people (Galla, 1997).

However, not much has been researched on the questionable trade in books and other forms of publications (Limb, 2002). One example of this “trade in books and documentation” is the apparent decision by the African National Congress (ANC), the leading political party in South Africa, to deposit thousand of boxes of its archives with the University of Connecticut in the

United States. Rumour had it that is due to the inability of the University of Fort Hare (a university in South Africa) to look after the material properly. According to the agreement the original material will reside in North America, and the University of Fort Hare will be provided with a set of microfilms (Britz & Lor, 2003; Carlisle, 2000; University of Connecticut, 1999).

4.5 Conclusion

In this chapter I argued that information poverty is not a new concept and the experience of being information-poor is as old as human history. The notion of information poverty was first coined in the 1950s and gained popularity in the information era, which was accompanied by the phenomenal growth of modern ICT.

Based on a thorough literature overview I came to the conclusion that, although the notion of information poverty is used widely, there is little agreement on what exactly it means. I identified three major interrelated approaches to information poverty in the literature. These are: an information connectivity approach focusing on the connectivity to ICT; the content approach where the focus is on the effect of the unavailability of essential information to people; the human approach which I defined as the knowledge or hermeneutical approach where the emphasis is on the ability of people to apply meaning to information and to benefit from it. A few related perspectives to information poverty were also discussed.

Following from the literature study I proposed my own approach to information poverty. I found the most suitable way was to start with the description of a hypothetical ideal information-rich society. I based this on the main characteristics of information which were described in Chapter 3. This approach offers many advantages – one can, for example, identify the main causes of information poverty, understand the different degrees of information poverty and use this ideal situation to develop strategies to address information poverty. Based on this ideal information-rich situation I then defined information poverty and highlighted the intellectual capital of an information poor society.

In my further deliberations on information poverty I illustrated that different degrees and levels of information poverty can be distinguished and that it is possible to measure them qualitatively as well as quantitatively. I discussed

the main causes of information poverty in more detail because I will use these arguments in Chapter 5 to show that information poverty is a serious moral issue.

CHAPTER 5

INFORMATION POVERTY AND SOCIAL JUSTICE

5.1 General introduction

The aim of Chapter 5 is to illustrate that information poverty is of profound ethical relevance and as such a serious matter of social justice.

In the first part of the chapter I illustrate, by means of three core arguments, that information poverty is indeed a serious moral issue and therefore a matter of social justice. Following from this the second part of the chapter deliberates on justice as a moral tool that can be used to assess and guide information poverty. I argue that social justice has universal moral validity, that it has an important bearing on information-based rights as well as the fundamental freedom of people. Three core principles of justice are distinguished, and based on these principles I identify and discuss seven categories of social justice that can be applied to the moral problems associated with information poverty. I have published a summary of these three core arguments in 2004 in the Journal of Information Science (Britz, 2004).

5.2 INFORMATION POVERTY AND SOCIAL JUSTICE

It is clear, based on the discussion on information poverty in Chapter 4 that the gap between information-rich and information-poor people is a realy that affects the lives of millions of people. I will argue in the following chapter that this information gap is of profound ethical relevance. It is evident that the global modern capitalism driven by modern ICT, as well as the continuous trend to commercialise information products and serves, can lead to forms of social injustice in the creation, distribution of, access to and use of essential information. I present three core arguments, based on the discussion in Chapter 4 to further illustrate why information poverty is a matter of social justice.

5.2.1 Right of access to and communication of information

The fact that globalised capitalism is an information-driven model implies that the right of access to essential information is more than a basic

necessity. It must be regarded as one of the most important rights of the information era. I will elaborate on this important right in more detail later in the chapter. Alexander Graham Bell (1878), inventor of the telephone, said, "The poorest man [sic] cannot afford to be without his telephone" (Hamelink, 2000:84). One could rephrase Bell's famous words by stating that the "poorest person cannot afford to be without access to essential information".

The right of access to information is reemphasised today with the inclusion of Article 4 of the Declaration of Principles issued at the Geneva Summit of the WSIS (WSIS, 2003) stating:

> "We reaffirm, as an essential foundation of the Information Society, and as outlined in Article 19 of the Universal Declaration of Human Rights, that everyone has the right to freedom of opinion and expression; that this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers. Communication is a fundamental social process, a basic human need and the foundation of all social organisations. It is central to the Information Society. Everyone everywhere should have the opportunity to participate and no one should be excluded from the benefits the Information Society offers".

According to Habermas (1989), access to information is a fundamental and necessary pre-condition for personal development as well as socio-economic and political participation. One of Habermas' public sphere elements includes, for example, that museums as well as public libraries must make information available for free to everyone who lives and works or studies in a local area.

Building on Habermas' points of view I argue that a clear case can be made that access to information is a prerequisite for becoming a knowledge and information society. Acknowledging such a right not only allows access to the ideas of others, but opens up the opportunity to participate in global information-based socio-economic and political activities. The denial of access to information is therefore no longer merely a denial of access to the ideas held by others, or oppression of the freedom of expression; it will also marginalise people's participation in various economic, political and socio-

cultural activities. It touches the very heart of the modern information era (Lor & Britz, 2006).

The right of access to information has indeed become one of the fundamental individual rights. Not only is it an individual right. The fact that the global economy is based on the manipulation of information puts this right within the realm of a social right – in other words, the right to participate in economic activities. Apart from being one of the most important individual and social rights I also argue that access to information is an instrumental right, because it allows and empowers individuals to exercise all other rights. The South African Constitution rightfully defines the right of access to information within this framework (Constitution of the Republic of South African, Chapter 2 section 24, 1996).

The argument that access to information is an instrumental and individual as well as social right not only implies the protection of this right, for example, in a constitution and by means of legislation, but also ensuring the enabling of this right. One can indeed argue that society has a moral obligation and legal responsibility to create an accessible information infrastructure together with a legal regime that will allow citizens not only the protection of this right but also the means and ways for exercising it.

It is therefore clear, based on the preceding deliberations, that for poor and developing communities the exercise of this right is threatened by amongst others the commoditisation of essential information and the exclusive (and exclusionary) use of modern ICT. This dominant role of ICT not only excludes certain people from accessing information but also limits the creation of equal opportunities for participation in economic and other processes. This leads to the ethically relevant question: How could one find a proper balance between the interest of the creators of knowledge and the public interest? In other words, which information products and services should be regarded as a common good, and how should they be distributed in a fair manner? This question has a specific bearing on the current intellectual property debate and as I have indicated in Chapter 4, it is doubtful whether the current global governance of intellectual property rights can provide such a balanced approach.

Individuals and societies that are excluded from modern ICT are not only denied access to most of the information that is on the Internet, but, as a result are also denied the opportunity to let their voices be heard and to

express their opinions. This puts a serious burden on the world's dialogue and communication abilities, which are more critical that the mere exchange of information (Britz, 2004). Hamelink (2003:40-43) expresses his moral concern that without global dialogue, the sustainability of our common future is at risk.

I have pointed out earlier that Herbert Schiller, a prominent figure amongst a group of Critical Theorists, specifically criticises, from a moral perspective, the current political economy of the production and distribution of information products and services and of information-based technologies (1981, 1983, 1984, 1991). According to him the information society is driven by advanced capitalism and information products and services are produced to meet the needs of super-corporations and the national government bureaucracies of the advanced industrial states. The free market principles of production and distribution are according to him likely to exclude all but a small minority of the public. He further argued that the promotion of the marketplace will inevitably lead to a decrease in support for key information industries that were for very long dependent on public funding. He refers specifically to libraries, museums and certain forms of mass media like national television and radio. This leads to the so-called new "information class inequalities" whereby the ability to pay for information will become the determining factor for access to information. The "ability to pay" criteria for the information society led Schiller to distinguish between the information rich and the information poor (1983). This is according to him an "access gap" that will widen because the information rich will be the educated and economically privileged and they will be able to extend their advantages by being able to access value-added information resources that are mostly protected by intellectual property legislation. Those at the bottom, the information poor, will not only be denied access to this much needed information, but will be swamped by what he coins as "garbage information" – mostly entertainment, gossip and sport.

5.2.2 Power relations

Another ethically relevant issue is that information equals power and power implies responsibility. The problem, as I have pointed out in the previous chapter, however, is that information becomes a source of power only if there is an information infrastructure and when people have access to the information together with the skills to put information to use (Neill, 1995).

Giddens (1985) furthermore points out that power and the accumulation of information are intimately connected and lie at the heart of the modern nation state. This specific relationship between power and information is certainly not to be ignored and explains the growing concern amongst civil libertarians that institutions, and more specifically the state, want to see everything to put them in a position of power and control. Modern ICT creates the possibility for this to come true. The main concern is not only that it will threaten the rights and freedoms of individuals, but also that it can create asymmetric information relationships reflecting a scenario whereby citizens will experience that they don't know who knows what about them. The moral concern is that this development, fuelled by global terrorism, has become inescapably attractive to governments. This can and as a matter of fact has already caused government agencies around the globe to access data and files of individuals collected for other purposes. This is done in many cases without the consent or knowledge of those individuals (Webster, 2002).

Such an asymmetric information relationship whereby people are being observed without their knowing it can also be illustrated by the *panopticon* metaphor to which I have referred in Chapter 4. For the sake of the argument I elaborate on this discussion. This notion was popularised by the French philosopher Foucault (1977). The idea actually originates from the British philosopher Jeremy Bentham who used it to describe the architectural design of prisons and hospitals in Britain at the time. Custodians and guards, located in a central, but dark position could observe patients or prisoners without themselves being visible. Prisoners were usually held in separate, illuminated cells on the circumference. Foucault used this metaphor to describe what is happening in today's modern information-based societies. Due to modern *panopticon* technologies people are watched and decisions are made about them without their being aware of it. For Foucault this is a discipline society, because the observed cannot "see" the observers, neither do they communicate with others who are being observed. According to Foucault this new relationship between power and control is an integral feature of the modern advanced societies.

Power and the accumulation of information is not only limited to governments. Corporate capitalism has also discovered the economic benefits of surveillance and is a trespasser in this field. It started with F.W. Taylor (1947), the father of scientific management, who in the late 19th

century argued that managers are information managers specialising in the observation of workers to maximise production and serve the cause of capitalism.

Turner (1991) advocates a symbiotic relationship between intelligence and business. Intelligence includes the gathering, processing and use of information of workers, competition and consumers. In line with this, Webster (1995:72) argues that corporations "…have burrowed deeper into the fabric of society, both by developing the outlet networks which are readily seen in most towns, and by replacing much self and neighbourly provision with purchasable goods and services".

It is clear that these power relationships, based on control and surveillance, do not stop at the shop floor (Webster, 1995). The focus has shifted to find out more about lifestyles of potential and actual customers and consumers. Modern electronic technologies are used to profile customers, allowing big businesses to portray an individual's spending patterns, preferred shopping locations, buying habits as well as tastes.

The moral problem is that as the scope of surveillance and profiling in a society grows, the confidentiality of communications diminishes (Hamelink, 2000:126). It is therefore a legitimate concern for justice. This imbalance in power touches the very heart of human freedom, dignity and security.

The ethical dimensions of the relationship between information and power take on different forms. The first relates to ownership of information. Schiller (1991) argues, for example, that the commoditisation of especially collective information results in this information becoming the intellectual property of a few individuals and companies and that access thereto is controlled on the basis of this ownership.

New power relations can also be found in economic totalitarianism. It can be primarily attributed to the development and expansion of the so-called information conglomerates. The mergers of America Online and Warner Brothers as well as many telecommunication companies in the USA serve as a prime example of these information giants. In this regard Aidan White (2000), the general secretary of the International Federation of Journalists, remarks: "…this merger may redefine the worlds of entertainment, communication and commerce, but it may also threaten democracy, plurality and quality of media".

5.2.3 Relevancy and accuracy

Of ethical relevance is also the fact that, aside from the withholding of essential information, large amounts of non-essential information, including for example sport and entertainment as well as one-sided news reports are distributed via the internet, television networks and other forms of mass media (Britz, 2004:200). Schiller (1981, 1984) refers to this as cultural imperialism, and as I have pointed out in Chapter 4, the French philosopher Baudrillard (1993) is of the opinion that this phenomenon gives rise to more information and knowledge being available but with less meaning. This phenomenon, without a doubt, casts a shadow of suspicion on the quality and usefulness of the distributed information. In addition, the extent of the distribution of this information contributes to a form of cultural expansionism at the expense of indigenous cultures (Britz, 2004). In research conducted by Cullen (2003), it was found that especially non-Western cultures have no real need to search for information on the Internet as it was irrelevant to their needs. De Mul (2003) as well as Giddens (1991) pointed out that even for first world societies, cultural representation and expressions via the Internet and other forms of mass media did not reflect nay more a true reality and in this way created cultural as well as identity uncertainty.

It is thus clear, based on the deliberations in Chapter 4 and these three core arguments, that information poverty is a serious moral issue. It not only affects the individual and community in terms of human freedom, dignity and autonomy, but also limits the individual's and society's ability to make informed choices and to develop in the different spheres of live. Asymmetric information relationships also give rise to new power relations, and in many cases leave information-poor communities powerless and dependent. No society can exist without essential information; and the primary requirement of a just society is fair information distribution and equal access opportunities (Britz, 2004).

I argue therefore that information poverty is a matter of justice. In the following paragraphs I will deliberate on the notion of justice and human rights and explain how it can be used as a moral tool to assess and guide information poverty.

5.3 Justice and human rights: moral tools to assess and guide information poverty

5.3.1 Social justice, human rights and universal moral consensus

The debate on and search for moral foundations has a long and complex history and is indeed a difficult but important challenge. There are two possible approaches. One is the post-modernist approach that is in most cases inclined to reject a common moral foundation which has universal validity. At the other end of the spectrum there are those, within the modernist tradition, that are in favour of a shared moral foundation that has universal validity.

In line with philosophers such as Kant (1981) Rawls (1971) and Habermas (1993) I argue that, in dealing with the above-mentioned moral challenges facing information poverty in specifically developing nations, there is a need for a moral consensus that is in some sense universal. Such a moral consensus should be agreed upon by all the bodies that are involved in alleviating information poverty. Both Rawls (1971) and Miller (1999) point out that without a "basic structure" in society – which in this case is constituted by the international and national bodies involved in fighting of information poverty – it is impossible to define rights and duties and moral obligations. In other words, without the agreement of and the establishment of a "basic structure to eliminate information poverty" it is impossible to create a common moral foundation. In the process of establishing a common moral foundation it is furthermore of the utmost importance that the voice of the poor should be loud and clear. Moral consensus should not become, in the words of Lyotard (1985) another "grand narrative" with absolute truths that only represent one viewpoint. Habermas (1993:x) correctly points out that norms are only valid if they are approved by all affected parties. This can only be achieved when there is an open dialogue between equal role players (rich and poor) that are involved in information poverty.

In support of my position I quote Hamelink (2000:59) at length:

> "One of the problems with a relativist position is that there is little hope for justification outside the boundaries of a specific situation. Thus moral relativism may ultimately lead to moral indifference for events beyond the confines of a local scheme of values. Against this, the universalist position [the position that I support - JJB] accepts that there are values that transcend local boundaries

> and that these are applicable to all. The universalist refuses to abandon the world and its people's common future to moral indifference".

Based on the value statement that the alleviation of information poverty serves a common good purpose, I am of the opinion that there are two moral principles that meet the requirement of universal validity and that can be used to guide moral decision-making regarding information poverty. These are justice and human rights.

The question can then be asked: why justice? The answer lies fundamentally in its definition: to give a person or a group – in this case all those who are involved in, and exposed to information poverty – what they deserve. Justice, as moral notion and if applied correctly, prevents harm and demands treatment that respects humanity. It would ensure that individuals, communities and society adhere to their moral obligations and responsibilities regarding the information poor.

Human rights, as an expression of human dignity and autonomy, are also closely associated with justice. Human rights can actually be seen as the legal articulation of the core and fundamental principles of justice. Miller (1999:13) strongly argues that "…a central element in any theory of justice will be an account of the basic rights of citizens…".

5.3.2 Defining justice

Justice, in the tradition of Plato and Aristotle, is seen as the most important virtue regulating human behaviour. John Rawls (1973) remarks in the introduction of his book on social justice that "justice is the first virtue of social institutions just as truth is for systems of thought". He therefore views justice as an important virtue for any social institution and indicates that it should be used primarily as a normative instrument in the evaluation of an institution or in societies (1973:5). The reasons for this are that social justice not only creates a consciousness within the community with regard to social injustice, but also that social problems, including the inequality between information-rich and information-poor communities, are addressed practically. As a social virtue it sets out important principles for a fair and equitable treatment of all people within communities and offers normative guidelines for the regulation of existing inequalities, for example between the information poor and the information rich, within social institutions.

According to Young (1990) it is a negative and positive virtue. The correct application of justice not only prevents conflict in society, but also contributes positively to the development of mutual respect and recognition of human dignity as well as the creation of a sustainable environment within which to live.

5.3.3 Scope and structure of justice

Justice is a public matter and addresses collectively public and social matters which can be changed or altered – such as poverty. The scope of justice "concerns any aspect of human life where people's lives can be harmed, their dignity be violated or their development be constrained" (Lötter, 2000:191).

For justice to have an impact on society there must be a common voice and a common point of view and agreement on justice. Such a common point should be embedded in a constitution, laws, rules and a social structure that recognises shared moral values and norms (Miller, 1999). This allows citizens the moral right to claim certain rights based on justice as it is expressed in the rules and regulations. Rights also imply duties, which mean that citizens also have a moral responsibility to others to treat them in the same just manner.

In discussing the scope of justice it is important to understand that justice is not only limited to the public and the societal spheres (Rawls, 1971; Sen, 2000). Justice as a public interest is not limited to the broader public, but takes into consideration the well-being of individuals – whether they are poor, marginalised, assaulted or raped. Justice therefore requires that individual and private matters, for example, family issues, become public matters (Young, 1990, Lötter, 2000).

Lötter (2000:191,192) also argues that, although justice covers most aspects of human life, not all norms and rules apply to all circumstances. People differ and so do circumstances. Treating people according to merit will, for example, only apply to certain sectors of society whereas respect for human dignity will apply to all spheres of live. I will elaborate on these important issues of justice and human differences in the next section.

Lötter (2000:188) and Hampshire (1989) both warn against the blindness of injustice when there is an assumption that a particular social arrangement in

a society cannot be altered or changed due to its perceived nature, social setting, customs or religion. These preset conditions make it difficult to change or alter society according to the moral imperatives set by justice. This explains why little is sometimes done to alleviate poverty in societies where the poor are voiceless or where women are perceived as inferior. These hidden forms of injustice need an in-depth and sophisticated analysis. This articulates again the complex nature of justice.

It is important to make a few pertinent remarks on globalisation and justice. Lötter (2000:200) correctly argues that in the era of globalisation it would be wrong and inappropriate to distinguish domestic justice from international justice. Two arguments can be used to support this point of view. Firstly, some local issues concerning justice intersect with international justice – such as the 9/11 attacks in the US, the former apartheid system in South Africa and the current state of poverty in most African countries. Secondly, the introduction of modern ICT opens up the world, simultaneously allowing interactivity, customisation and broadband (Evans & Wurster, 1997). The introduction of the Internet and the Worldwide Web, in the words of Tomas Friedman (2005:48), has flattened the world where the "walls came down and the windows went up". Time and space are no longer constraints for human communication and other activities. Virtual communities are formed and it has become nearly impossible to distinguish between the local and the global. The boundaries between local and global justice have become blurred and they have indeed become interrelated concepts. It is mainly based on the "flattening" of this world that the sense of international justice had a major impact on the way in which poverty in Africa is addressed by the rich nations of the world.

Justice has become a global normative tool that can successfully be applied to ensure fairness when it comes to the treatment of the information poor. As a normative tool it is based on the core values of concerns and fairness towards others (Kant, 1997; Hamelink, 2000; Belsey, 1992). As humans we share the same basic needs, have the same self-interest, but also share the same concern for others. These concerns must be expressed by the idea that "the other" is a person.

This core and fundamental principle of justice allows us to identify, apply and interpret universal principles of justice. The well-known Australian philosopher Peter Singer (1981) correctly argues that non-poor people, irrespective of where they live, or of how many people are able to assist,

have a moral obligation and responsibility to the poor. Not being involved in the lives of the poor (and one can add the information poor) is according to Singer a violation of the important value of respect for the other.

5.3.4 Justice and human capabilities

From the perspective of information poverty it is also important to give a brief overview of the capability approach which has it roots in Karl Marx, Adam Smith and John Stuart Mills (Robeyns, 2003; Clark, 2006). The main pioneers of this approach are the economist and philosopher Amartya Sen, whose first publication on the capability approach saw the light in 1979, and the philosopher Martha Nussbaum, a student of Sen, who started to publish on this topic in 1988. Sen (1995) initially saw his approach as the providing of an evaluation space for human well-being and not a framework for the development of a theory of justice. Nussbaum took a more specifically social justice approach but both authors argued that the focus of development theories and social evaluations and policies should be on what people are able to do and what they can become. I will explain these two important notions in the following paragraphs.

The capability approach is important for a study on social justice and information poverty for a number of reasons:

- As an interdisciplinary approach it allows the study of information poverty from both an applied social sciences and an applied philosophical perspective.
- As an approach it allows the study of international and global issues as well as evaluations of local and national conditions. Fukuda-Parr and Kumar (2003) pointed out that this approach is widely used in the design and application of development policies around the world.
- This approach applies to both the rich and the poor and presents a tool that can evaluate and facilitate development together with reform and change in welfare states (Robeyns, 2003:6).
- As a normative instrument to evaluate societies, it allows one to focus on the questions of why people are information-poor as well as the condition of being information-poor.
- It allows one to differentiate between individuals in terms of choices to be information-poor, conditions of information poverty as well as different sets of capabilities and how these impact on conditions of information poverty. Acknowledging human diversity is central to

Sen. According to Sen (1992:xi) human diversity "…is no secondary complication to be ignored, or to be introduced 'later on'; it is a fundamental aspect of our interest in equality".

- As an approach it allows for the notion of human responsibility to be introduced. The ability and opportunity to make choices implies a certain level of human responsibility regarding choices that are made.
- Based on this approach, it is also possible to develop a universal set of information-based human capabilities. Such a list can be expressed as a set of universal information-based human rights.

As an interdisciplinary approach, the capability approach deals with the full terrain of human development and in a nutshell can be defined as an approach dealing with social change in society by providing a normative framework for the analysis and evaluation of social arrangements, but more specifically for the well-being of individuals. The focus is primarily on inequality, human ability and poverty, and it is not based on a mere cost-benefit analysis to measure poverty and inequality. In other words, social evaluation of poverty and inequality is not done in exclusively monetary terms. As an approach it also identifies those social and structural constrains that influence and restrict human development and well-being (Sen, 1993; Robeyns, 2003; Kuklys, 2005).

As a point of departure, this approach takes individual capacity in terms of what people are able to do and to be. This focus on human capacity brings a new emphasis on human development and the fulfilment of human needs. As such it differs from the more traditional utilitarian approaches (Robeyns, 2003:5). According to Sen (1984) happiness represents only one aspect of our human existence. Sen (1984) further argues that we need to recognise human diversity in defining human well-being, and if it is not taken into consideration in social analysis, we will fail not only to understand the different resources people need to achieve human well-being, but also to address it properly. Sen (1984), although influenced by Rawls, also criticises him in this regard for not acknowledging sufficiently that different people have different needs and need different resources to fulfill those needs.

Sen (1993:30) formulates this approach as follows:

> "The capability approach to a person's advantage is concerned with evaluating it in terms of his or her actual ability to achieve various functionings as a part of living".

The capability approach has as its focus what people want to be – in other words, their well-being, together with the opportunity to undertake actions and activities based on their individual capabilities to achieve their well-being. Sen (1993) refers to these actions and activities as functions which can, for example, include working, the ability to rest, to be healthy and to be educated. Functioning is therefore the use that a person has of commodities that are available and that such a person command. Sen (1993, 1999) makes an important distinction between:

- achieved functions – actions and activities that have been realised and
- capabilities – what is effectively possible to do to achieve well-being. This is also referred to as human 'freedom'. A capability in other words reflects a person's ability to achieve a particular function in different ways. A strength of Sen's approach is that there is no one particular set or list of capabilities.

However, functions and capabilities are closely related. According to Sen (1987:36) a "function is an achievement, whereas a capability is the ability to achieve. Functions are, in a sense, more directly related to living conditions, since they are different aspects of living conditions. Capabilities, in contrast, are notions of freedom, in the positive sense: What real opportunities you have regarding the life you may lead". What matters in other words is not what you have, but what you can do with what you have.

According to Sen, people must have the freedom (capabilities) to be what they want to be to live their lives according to their choices. These capabilities, if available, allow effective choices for individuals in terms of what they want to be. In practical terms it means that people must have, for example, the opportunity to work and to be educated and be part of a community. However, they should also have the choice of which community they want to belong to and what work they want to do. Having the opportunity and the freedom to choose implies responsibility regarding the choices that people are making. Robeyns (2003:21) explains: If you are educated and able to work, and there is a job opportunity available and offered to you, then taking the job that allows well-being is an opportunity. By not taking the job one will not be able to enable those functions (human well-being) and such a choice can be seen as a negligence of one's own responsibility.

Robeyns (2003:11) uses another example to illustrate the difference between functions and capabilities. Two people are both not eating enough to enable the function of human well-being. The one lives in Ethiopia and is a victim of famine, while the second person lives in the US and has decided to go on a hunger strike in front of the Chinese embassy in Washington DC to protest against China's occupation of Tibet. Although both persons lack the function of being well-nourished, the freedom (capability) to avoid being hunger is the crucial distinction. The protester in Washington had the capability (freedom to choose) to achieve the function of being well-nourished while the person in Ethiopia lacks this capability.

It is also important to distinguish and understand the relationship between the following variables:

- Means to achieve.
- Freedom to achieve.
- Achievement.

Means to achieve are the availability of those products and services needed to achieve human well-being; these goods and services are not limited to commercial transactions. The main characteristic of a product or service is the fact that it enables a function. For example, we are interested in a library because it allows access to certain information we need to make certain choices. Also, we are interested in a car, because it allows us to travel faster (function) than we can walk.

The availability and use of these products and services are influenced by three factors. Firstly, there are personal characteristics such as intelligence, level of education, skills and physical condition which influence the way in which a person is able to convert the product into a function. If a person is illiterate the use of books or other text-based material in a library will be of limited help to enable the function of being informed. Also, a car will be of little or no use to a blind person to enable the function of mobility.

The second factor is social characteristics. These include hierarchies in society, social norms, public policies, rules and procedures, cultural habits including gender roles and discriminating practices (Robeyns, 2003:12). Women in certain Muslim countries are, for example, forbidden to drive cars. Based on this social norm, embedded in public rules and regulations,

women have limited means to enable the function of mobility. The functionality of being informed and being knowledgeable is also severely limited in those cultures where girls, based on social norms, are excluded from certain levels of education. This approach therefore acknowledges the normative importance of groups.

Environmental characteristics which include climate, infrastructure, and public goods are the third factor that influences the way in which products and services can be conveyed into individual functioning. There is no or little use for a library if people do not have the means (transport) to get to the library to actually use it. Another example is the establishment of telecentres in the Sahara desert. However, if the computers at these centres are not adequately protected from environmental characteristics such as the heat and the sand, their effectiveness will be limited.

The availability and usability of products and services to enable human functioning is therefore complex and can differ from individual to individual. A clear understanding of individual, social, structural and climate (natural) conditions and circumstances is therefore a prerequisite for understanding and knowing the abilities of people to put available products and services to use to enable certain functionalities.

However, the capability approach does not use the function (for example, visiting the library or driving a car) as the ultimate normative measurement to evaluate society. The focus is rather on the real freedom of individuals, that is, in the words of Robeyns (2003:13), "…with their capability to function, and not with her achieved functioned [sic] levels". Functions are what we are and what we do in life whereas capabilities are the "…alternative combinations of functionings that this person can achieve and from which she can choose one vector of functionings" (Robeyns, 2003:13). Sen (2002) refers to this as the idea of opportunity. The focus of this approach is therefore on the ability of people to make choices (freedom to achieve) of what they want to be (achievements), and this can differ from individual to individual and from context to context. Products and services, including economic resources available, are important, not in themselves, but in terms of their effectiveness in the development of lives of people and to allow them to perform their chosen function.

Whether the focus of social analysis should be on achieved functioning or the freedom to achieve these functions (capabilities) will also differ and are

determined by context. For example, the capability approach will rather focus on the achieved functioning of the person who went on a hunger strike to protest against China's occupation of Tibet because of the fact that he went deliberately on a hunger strike. But as far as the famine and hunger in Ethiopia is concerned, the focus of the capability approach will be on the capabilities and freedom to achieve the function of being nourished.

Not only does this approach allow one to evaluate society based on either capabilities and achieved functionalities, but it also recognises individual differences. Two people, with the same capability sets, living in the same place, having equal access to products and services including information, might end up with different sets of achieved functioning because they made different choices based on a different set of priorities or because of social and other constraints such as legislation. This explains, according to Sen (2002), why the focus in social analysis should not be on achieved functioning only, but rather on capabilities.

The capability approach has some very important implications for information poverty. This approach re-emphasises the fact that access to essential information and the ability to benefit from this information is one of the fundamental sets of capabilities needed to achieve human well being. One can even rephrase Sen (1993) by stating that the ability to benefit from information is a "basic capability" (in his work Sen identifies certain "basic capabilities"). Not only is information essential to human well being, but it is instrumental to our freedom to make choices and to create opportunities to achieve this well being. The freedom to access information can thus be seen as a "fundamental freedom" that contributes to overall freedom. "Information freedom" can therefore be added to the list of five instrumental freedoms listed by Sen (1999:38). These are: 1) political freedoms; 2) economic facilities; 3) social opportunities; 4) transparent guarantees and 5) protective security.

As an approach it also explains and facilitates different contexts of information poverty (as I explained in Chapter 4). It allows focusing on different individuals within different settings by focusing on each individual's unique set of capabilities such as command of language and the availability of services to access information in a particular context as well as the choices individuals make in different contexts.

The capability approach can furthermore be used to explains how individual information-related attributes such as intelligence and blindness (in terms of access to information) as well as social amenities including the political economy of the distribution of information, intellectual property regimes and social settings (moral values and censorship) determine how products and services are converted into functions. Material assets alone are not enough to convert products and services into functions. Access to essential information and the ability to benefit from it is also crucial. Society's contribution to facilitate access to information and to ensure that people benefit from it (education) is therefore not only an economic necessity but also a moral imperative.

The capability approach therefore provides a normative framework to evaluate society's structure and policies based on the core principle of human well-being. Applied to information poverty it asks, for example, if people are information literate (achieved functions) and whether resources (for example, policies and taxes) are available to enable this capacity such as schools, libraries, information literacy programmes and access to the Internet. Are these resources present, accessible and affordable to those who need it to achieve their well-being? In other words, are society and policies structured in such a manner that they accommodate and support actions and activities to achieve information literacy? The capacity approach will therefore evaluate whether, and if so, to what extent, conditions are met to allow this capability (to be information literate) that will allow individuals to choose, which in Sen's terms can be translated as "human freedom", to materialise their goals. Resources required are not limited to financial resources, but will include issues such as the protection of freedom of expression, the right of access to information as well as a fair and just intellectual property regime that protects owners of intellectual property, but at the same time allows access to information and information resources.

5.4 Justice and human rights

Earlier in this chapter I argued that social justice not only has universal moral validity but that it has an important bearing on information-based rights as well as the fundamental freedom of people. In the following paragraphs I will deliberate on this relationship between justice and human rights.

Human rights can broadly be defined as just claims against someone or a society and can be seen as the protection of human dignity. Hamelink (2000) argues that the principle of human rights meets the requirement of universal validity. According to Hamelink (2000:59), "…human rights provide currently the only universally available set of standards for the dignity and integrity of all human beings". One can furthermore argue that although some of these claims do exist universally, the application and interpretation might differ from context to context. A variety of cultural interpretations and applications as well as legal articulations remains possible. The process of globalisation, stimulated by modern ICT, nevertheless reemphasises the need for a more cohesive application of human rights. Human rights reflect the following moral principles (Hamelink, 2000:62):

- Equal value of all people, implying that discrimination is inadmissible.
- Security and safety, implying that harm against human integrity is inadmissible.
- Freedom, implying that interference with human development and self-determination is inadmissible.

Human rights are therefore closely associated with justice. As I have argued earlier, one of the basic demands of justice is the recognition of the human dignity and the human rights of each and every person. As such it can be seen as the legal articulation of the fundamental principles of justice. Furthermore, human rights do not only act as a claim to ensure future justice but also as a remedy against injustice of the past.

Any vision of the development of an information and knowledge society, and of the alleviation of information poverty without a core set of information-based human rights, will only contribute to the widening of the gap between the information rich and the information poor while contributing to authoritarian models in society. Burch (2005:11) states: "Indeed communication has become so central to our lives, and the forces controlling it so powerful, that defending and guaranteeing communication rights has become an imperative for the women's movement, and indeed for any person or organisation concerned with democracy, development and social justice". In the same vein the WSIS (World Summit on the Information Society, 2005) has accepted the following declaration: "Communication is a fundamental social process, basic human need and the foundation of all social organisation. It is central to the Information Society.

Everyone, everywhere should have the opportunity to participate and no one should be excluded from the benefits the Information Society offers". The Council of Europe (2005) recognises that limited or no access to ICT can deprive individuals of the ability to exercise their basic human rights.

I propose a set of information-based rights which can broadly be defined as the body of existing information-related rights under international law that relates to

- freedom of the flow of information;
- access to essential information;
- freedom of opinion and freedom of expression;
- freedom of the press;
- the right to privacy;
- the right to be educated, and
- the right to own and control information.

Information-based rights, just like all other rights, are not absolute. They allow for exceptions and are confined by social responsibility. For example, the right of an individual to privacy is a *prima facie* duty that allows for exceptions. Two examples can be given. Firstly, police may violate a criminal's privacy by seizing personal documents and a government has the right to collect personal and some private information from citizens to ensure order and harmony in society. Governments are, for example, allowed to collect personal data for tax purposes (Britz, 1996b). Allowing collection of personal information related to taxation nevertheless does not give governments the liberty to spy on their citizens. In guaranteeing freedom of expression, national governments and international decision-making bodies must ensure that content related to child pornography, defamation, racism and sexism are combated by effective legislation. The right of access to information is also confined to that information a person needs to satisfy a basic need.

The distinction made by philosophers between positive and negative rights also applies to information-based rights (Johnson, 2000). Negative rights are those rights that require restraint by others and society. For example, my right to own information requires that society refrains from stealing my information. However, a society is not obligated to take positive action that will ensure my ownership of information. On the other hand, some

information-based rights are positive rights, implying that others do have a duty to take some actions to ensure that I can exercise these rights. These rights include the right of access to essential information and the right to be knowledgeable. For example, it can be argued that society has a moral obligation to ensure basic education for all because it will not only allow people access to essential information but also empower them to benefit from this information.

The inadequate enforcement of information-based rights is one of the main obstacles in the effort to successfully apply and protect these rights. There is abundant evidence around the world of the violation of these and other rights and the moral principles they stand for. There are a number of reasons:

- The classic gap between our moral knowledge and words and the way we act morally as humans.
- The limited powers of national and international bodies (for example, the UN) to enforce human rights are very limited.
- The lack, in many cases, of a political will to enforce these rights.

5.5 Human rights, freedom and social justice

From a moral philosophical perspective, these information-based rights are furthermore a matter of human freedom and social justice. There is a long philosophical tradition, starting with John Locke, recognising human freedom as one of our highest values. Social justice is the required moral tool for ensuring the protection and allowing of this right to freedom in society (Rawls, 1971).

What is then the relationship between human freedom and access to information? Freedom not only relates to our ability to choose, but also to the content of the choices that we make. The former category is known as formal freedom (the ability to choose) and the latter is material freedom (what we choose). The identified information-based rights, in particular the right of access to information, have a direct bearing on both these categories of choices. Without access to an information infrastructure, for example, libraries, books and the Internet, together with the ability to read and write, our ability to choose (formal freedom) will be seriously limited. To put it in Sen's terms: we will lack the capabilities to achieve our well-being. Our material freedom (what we choose) is also closely related to access to information. Irrelevant, biased and incorrect information all affect our ability

to make informed choices (Britz, 1996a:244). In the era of globalisation and the digital economy one can furthermore argue that limited access to relevant and accurate information not only limits our choices but also our ability to participate in the different information-based socio-economic and political activities – in other words: our freedom to participate. Freedom's prerequisite is indeed access to information infrastructures as well as relevant and accurate content.

Material freedom can furthermore be divided into negative and positive freedom and the one corresponds with the other (De Villiers, 1984). Negative freedom is expressed as "freedom from" and emphasises the negative side of our freedom according to which individuals have the freedom from negative actions that can inhibit their freedom. A good example of negative freedom in the political sphere is "freedom from" oppression and "freedom from" intrusion into the private lives of citizens. Negative freedom is therefore the absence of any negative actions and structures that inhibit our freedom. Corresponding to negative freedom (for example, absence of oppression and non-intrusion in our private lives) is positive freedom which is also expressed as "freedom to". This form of freedom allows us to positively express our freedom by means of our activities and the choices we make. Based on the above mentioned example "freedom to" would imply the freedom to participate in a free and fair manner in a democratic process. Such a form of "freedom to" can only be exercised when there is a negative "freedom from" in place – in this case, freedom from oppression. In other words, negative freedom protects our rights and positive freedom allows us to exercise those rights.

Negative and positive freedom have a direct bearing on our right of access to information. This can be explained as follows. Negative freedom (freedom from) implies freedom from those obstacles that bar access to information. These obstacles include legal regimes, for example, strict copyright legislation and censorship, moral convictions, including strict censorship based on moral values, and economic models that exclude the poor from accessing essential information. Our ability to make well-informed choices is to a high degree determined by the absence (freedom from) from these obstacles. Negative freedom therefore puts a moral burden on society to ensure that the political economy of information production and distribution is fair to all. Corresponding to negative freedom is of course positive freedom – freedom to. Applied to information-based rights it would mean that we have the right to express our views and to have access to the ideas of

others (corresponding to the negative freedom from oppression and censorship). The new digital economy also implies that we must have the right of access to information allowing participation in different economic and political activities. In the same way as society has a responsibility to ensure the absence of obstacles to access essential information (negative freedom), so does society have the obligation to ensure that people are able to access and use information. The protection of freedom (freedom from) has little or no meaning if it is not also an enabling right (freedom to).

From the above it is clear that freedom to and freedom from assign to both society and the individual a certain level of moral responsibility (Huber, 1993; König, 1988:83; Kant, 1997). As individuals we have the obligation to exercise our right to freedom of access to information in such a manner that we respect the freedom of others and do not trespass on their freedom and corresponding rights. In other words, we need to restrain from defaming others, recognise their right to intellectual property and their right to freedom of expression. In the same manner society has an obligation to ensure that individuals can exercise their freedom. It can therefore be argued that society should organise the information infrastructure in such a manner that individuals are protected from draconic information laws (freedom from), and have the equal opportunity to access essential information (positive freedom).

5.6 Basic principles of justice

Based on the discussion of justice, human rights and freedom, I identify 3 core principles of justice. These principles, based on Rawls' theory of social justice (1971) form the basis for addressing the moral concerns raised in the thesis. I have summarised these three principles in an article published in the Journal of Information Science (Britz, 2004: 201).

Principle one

The most important claim of fairness (justice) is that all people (information-rich and information-poor) must be treated equitably and be judged according to the same norms. Justice should allow the recognition that we are all human beings with equal values and similar cases must be handled similarly. Frankena (1962:26) correctly points out that the main purpose of justice is to allow everyone in a society to enjoy the fullest life possible. Justice therefore claims respect for the humanity of people and has the well-being of humans as its priority. This principle of justice reflects Rawls'

(1973:60) first principle of justice which reads as follows: "Each person is to have an equal right to the most extensive basic liberty with a similar liberty for others".

Principle two

Second, justice implies that a person ought to get that which is due to her/him (Rawls, 1971:10). According to this principle of justice everyone should get what they deserve – be it good or bad. The problem is of course that this principle of justice is empty if one does not determine what exactly a person in a particular situation ought to get that is due to him/her. It therefore "presupposes detailed arguments to convince others of what people ought to have a right to" (Lötter, 2000:196). This principle of justice illustrates the complexity of the fair application thereof. As I have argued in the previous section, in dealing with the capabilities approach, people differ, societies are unequal and contexts and situations differ from another. It is therefore important to determine, based on an in-depth analysis, not only what specifically information-poor people require within a particular context, but also to determine the opportunities available, human capabilities to enable those choices as well as means (products and services) available to allow human well-being.

Principle three

Although fairness recognises the fact that all people are of equal value, it also recognises the inequality between people in certain cases, for example, income, set of personal traits and different categories of work. Rossouw (1995), as quoted by Lötter (2000:193), makes the point that unequal treatment is justifiable in those cases where differentiation between people is based on publicly accepted criteria representing all. Inequality must, however, be based on certain norms and may not be at the expense of the equal value of all people. A common set of norms and rules to address the different situations and issues in question therefore needs to be in place in order to correctly accommodate differences based on merit and outcomes. According to this principle justice recognises the fact that information-poor and information-rich people differ and that there are certain inequalities in the distribution of and access to information. These inequalities must, however, not be to the disadvantage of the information poor. This principle of justice reflects Rawls's second principle of justice which states: "Social and economic inequalities are to be arranged so that they are both a) reasonably expected to be to everyone's advantage, and b) attached to positions and offices open to all" (Rawls, 1973:61).

If properly applied, and mutually recognised by all living within a particular society, these three principles of justice will contribute to the establishment of a fair, stable and well-ordered society. The fundamental rights of people will be recognised and protected, and the differences between individuals and groups will also be recognised and dealt with according to the degree of differences and contexts. According to Rawls, inclinations to act unjustly will be overridden by a strong sense of justice shared by society as a whole (1971:454, 5). Behaviour motivated by self interest will also be limited.

The three principles of justices are summarised in the following table:

Principle	Description
Principle one	All people must be treated equally and judged according to the same norms.
Principle two	Every person ought to get what is due to her/him – be it good or bad.
Principle three	Inequality between people should be recognised but it should not be applied at the expense of the poor and marginalised.

Table 3: Core principles of justice

5.7 Different categories of justice

A number of different categories of justice can be distinguished. Relevant to the discussion on information poverty I distinguish seven categories. These are: justice as recognition, justice as reciprocity, justice as participation, justice as enablement, justice as distribution, justice as contribution and justice as retribution. (Britz, 2004: 201-203).

Justice as recognition
Justice as recognition can be broadly defined as the finding of ways to appropriately recognise and respect the humanity and autonomy of fellow beings (Lötter, 2000: 193). It insists on a pursuit of equitable treatment of all people because they are of equal moral dignity.

Justice as reciprocity
Justice as reciprocity deals with the "nature and scope and content of fair terms of cooperation in the personal, social and institutional levels" (Lötter, 2000:224). It is closely related to Aristotle's notion of commutative justice,

and it requires "fundamental fairness in all agreements and exchanges between individuals or social groups" (National Conference of Catholic Bishops, 1997:42). It also entails that the same rules and norms will apply in all similar situations. This will eliminate any arbitrariness in exchange relations.

Justice as participation

Justice as participation refers to the creation of equal opportunities (Bedford-Ströhm, 1993). It implies the elimination of negative inequality, as well as the termination of the marginalisation of poor communities in society. Participatory justice positively emphasises the equality of all people in respect of access to equal opportunities. In this regard I agree with Sen (1999) that the fair distribution of opportunities and capabilities are to a certain extent more important than only the fair distribution of goods. The purpose of participatory justice is, in other words, to ensure that each individual in a community has an equal opportunity to fulfill his/her live.

Justice as enablement

Justice as enablement is concerned with the extent to which society enables or constrains the self-determination and self-development of individuals (Young, 1990). As a form of justice it oversees the process whereby societies, based on their moral obligation and responsibility, allows human development to such an extent that people are enabled to make their own choices in order to fulfill their human well-being.

Justice as distribution

Justice as distribution has it roots in the thoughts and writings of the Greek philosopher Aristotle and can be described as the fair distribution of income, wealth and power in society with specific reference to the satisfaction of basic needs (National Conference of Catholic Bishops, 1997). Different criteria for distribution can be distinguished – for example, merit, need and equality.

Justice as contribution

Justice as contribution ties in closely with distributive justice and relates to the manner in which society is organised in order to enable people to make a productive contribution to the general well-being of society (National Conference of Catholic Bishops, 1997). In economic terms it deals with the common good as well as the private good and centres on the selection of

products, the volume that must be produced, and to whom the particular production processes are allocated.

Justice as retribution
Justice as retribution is also known as punishable or transformation justice. It is based on the principle that any normative mechanisms that are responsible for the application of justice would be hollow without an enforcement/punishment component. It does not only refer to the fair and just punishment of the guilty, but also to how to transform and change existing practices and institutions as well as human behaviour (Lötter, 2000).

5.8 Categories of justice applied to information poverty

The question can then be asked: how can these different categories of justice be applied to information poverty to ensure that the moral concerns are addressed in a fair and just manner? In the next section I will illustrate how these different categories of justice can be applied in addressing the moral concerns related to information poverty.

5.8.1 Information poverty: justice as recognition

This principle is broadly defined as the finding of ways to appropriately recognise and respect the humanity and autonomy of fellow beings (Lötter, 2000:193). It insists on a pursuit of equitable treatment of all people because they are of equal moral dignity and reflects the first and second principle of justice. Essential resources are therefore due to the information poor because they are human. This form of justice confirms, in other words, that the information poor must have a right to all information-based human rights. It can furthermore be argued that those (government, private sector and individuals) who are in a position to do so have a duty and responsibility to provide or support the providing of an infrastructure that will ensure that these rights can be exercised (Britz, 2004:201). Singer (1981) would even argue that this obligation involves all who have the means to ensure such an infrastructure.

Equal recognition therefore implies respect for every human being. This in turn implies that those things that people need to live a meaningful life and to fulfill their humanity are due to them irrespective of their colour, income, merit, gender, religion or lifestyle. Acknowledging the equal moral worth of each individual implies, as a standard practice in all societies, the recognition of equal information-based human rights. All must have a

similar right of access to the information needed to satisfy basic needs (in other words, essential information), to have freedom of expression and access to the ideas of others, to be respected in terms of their privacy and the right to be knowledgeable to enable responsible decision-making regarding opportunities available to allow human well-being.

Based on an interpretation of the first principle of Rawls, one can argue that justice as recognition means to allow, at least in principle, equal opportunities of access to essential information that will allow equal opportunities to all individuals to participate in the different socio-economic and political activities of a society. However, as I have argued in the previous chapter, the increased censorship in many parts of the world (most recently in China), together with high levels of illiteracy, the high cost of specifically scholarly publications and limited access to the Internet in most developing countries has severely limited the creation of equal opportunities for participation. This puts a serious constraint on finding ways to recognise the humanity and dignity of fellow human beings appropriately. Information-poor people are in many cases also poor in terms of material means. This does not only mean that they are price-sensitive regarding available information products and services in the marketplace, but also that they are treated with less respect. Not having the means to access essential information in the marketplace puts them at risk of being unable to make choices or to participate. This can leave the information poor powerless and exposed to the mercy of those who are informed and knowledgeable. Having to rely on the knowledge of other people creates asymmetric power relationships (I have elaborated on this in the first part of the chapter) and puts them at risk of exploitation.

Allowing equal access to essential information will not only empower the information poor, and put them in a position to make informed choices, but will have a great significance for the information poor as it will contribute to recognising them as equal human beings. Allowing freedom of expression on an equal basis, as well as access to the ideas of others, will mean that the information poor will have a platform where their voice can be heard and to voice their interest, thereby recognising their equal status as human beings.

Justice as recognition also means that people must be treated and respected according to their own terms and conditions. Information-poor people may suffer massive injustices because they are regarded as less intelligent or even stupid. It must be borne in mind that the information poor, approached from

a person-to-person perspective, might have different needs and circumstances than the information-rich.

5.8.2 Information poverty: justice as reciprocity

Just as all societies before them, modern information and knowledge societies can be characterised in terms of contractual agreements that define their relationships, outline benefits and burdens and specify duties, obligations and responsibilities towards one another. Ensuring fairness in all these matters is an important issue of justice and explains why moral philosophy is being influenced to study social contracts.

Justice as reciprocity deals with these contractual relationships and can be defined as the form of justice dealing with the "nature and scope and content of fair terms of cooperation in the personal, social and institutional levels" (Lötter, 2000, 223). It is closely related to Aristotle's notion of commutative justice, and it requires "fundamental fairness in all agreements and exchanges between individuals or social groups" (National Conference of Catholic Bishops, 1997:42).

It entails that the same rules and norms will apply in all similar situations. This will eliminate any arbitrariness in exchange relations. An important issue of justice as reciprocity is to determine what qualifies as fair contracts and mutual agreements concerning trade relations with regard to information products and services. Information-poor people can be vulnerable to different forms of injustices when unfair procedures are used to determine these agreements. This might imply that the information poor are excluded from having the freedom in making informed choices in life and from the opportunity to participate fully in the different socio-economic and political activities that provide for the achievement of human well-being as well as development (Britz, 2004:202).

Lötter (2000:224) correctly points out that the procedure for determining fair terms of contracts and co-operation must be evaluated in itself, because "…an unfair procedure cannot lead to a just outcome". For example, the procedure followed to formulate and implement intellectual property legislation needs to be evaluated to determine whether these regimes are fair to the creators of the knowledge as well as the users thereof. Justice as reciprocity will investigate whether the creators and users of knowledge had enough power and influence to make any meaningful contribution to the

process of formalising intellectual property regimes. Similarly, the decision of governments on how many resources are allocated for education, and who can benefit from them, must be judged in terms of whether the allocation is fair in terms of the available resources and also whether it is just to all who have the ability to be educated. The problem is that the uneducated (information poor) and poor in many cases do not have the authority or power to ensure fairness in allocation of resources to enable access to education for all.

Terms of co-operation are based on trust and promises and create expectations. If a government promises to allocate resources that will allow affordable access to education for all and in addition promises to create an information infrastructure that will allow each individual to have access to a telephone within walking distance, expectations are created amongst the information poor. The information-poor communities can demand that the government fulfill these promises. Such information-based promises (education and communication) make the government accountable and imply that the government has a moral responsibility together with the legal obligation to fulfill its duties towards society.

Free riders of information products and services are also a serious matter associated with justice as reciprocity. Information-poor people can, depending on the circumstances, easily decide to become free riders if they perceive the agreements and contracts regulating the distribution of information as unfair (Britz, 2004:202). The problem is of course that modern information and communication technologies allow free rides at the press of a button and copyright owners do not trust society to have sufficient moral integrity to keep to the agreed contracts as they are spelled out in intellectual property legislation. This has led to a stricter application of intellectual property legislation in many countries – particularly the rich nations (Drahos, 2003).

Justice as reciprocity is therefore concerned with the fair procedures and outcomes in terms of social contracts and co-operation regulating the creation, gathering, adding value to, distribution and use of information products and services. If these procedures and outcomes are viewed by all involved as fair and open and to the benefit of all, modern information and knowledge societies will benefit enormously.

This category of justice reflects the second and third principles of justice.

5.8.3 Information poverty: justice as participation

From an economic perspective participative justice is defined as the way in which an individual makes a contribution (input) to the different economic processes in order to make a living. To enable this, equal opportunities for gaining access to private property in productive assets as well as equal opportunities for engaging in productive work need to be in place. Having equal access does not guarantee equal results. However, it requires that every individual in society is guaranteed the equal human right to be able to make a meaningful contribution to the economy. This can be by means of labour (as a worker) or by means of a person's productive capital, in other words as an owner. This principle of justice therefore rejects the following (Center for Economic and Social Justice, 2006):

- Monopolies in the marketplace.
- Special privileges to a few.
- Social barriers that exclude people from participating in the economic process.

Bedford-Ströhm (1993) refers to the creation of equal opportunities as participatory justice. According to him it implies the elimination of negative inequality, as well as the termination of the marginalisation of poor communities in society. Participatory justice positively emphasises the equality of all people in respect of access to equal opportunities. This position is in line with Sen's (1999) idea that the fair distribution of opportunities and capabilities is to a certain extent more important than only the fair distribution of goods.

As an expression of a basic form of justice it recognises the importance of policies and systems that not only support family life and smaller communities, but also enhance the economic, socio-economic and political participation of all. Economic systems that marginalise the poor and benefit the rich are challenged as unjust. Participatory justice therefore "…demands the establishment of a minimum level of participation in the life of the human community for all" (Economic Justice for All, 1995:439).

One way of violation of this form of justice is the marginalisation of people and treating them as if they are not human beings. There are many examples. I mention two – repressive governments and the inability of developing

nations to fully participate in the global economy due to restrictive measures taken by the rich nations to protect their own markets. Current trends reflected by TRIPS and GATT agreements are examples of these measures. Overcoming marginalisation is seen by the Catholic Church as the "… most basic demand of justice" (Economic Justice for All, 1995:439).

The purpose of participatory justice is, in other words, to ensure that each person in a particular community has an equal opportunity, not only to gain access to essential information, but also to receive education in order to benefit from access to information (Britz, 2004:202). In Sen's (1991) terms this will allow individuals the opportunity to develop their own dignity and to achieve their human well-being.

From an information poverty perspective examples of the violation of this form of justice include:

- Restriction of the freedom of expression.
- Violation of a person's right to privacy.
- Strict censorship and unfair intellectual property regimes.
- Creation of information monopolies.
- Economic policies that do not allow affordable access to essential information.

The application of participative justice therefore implies that there must be a basic level of access to essential resources for all, including essential information. Such participation is "…an essential expression of the social nature of human beings and their communitarian vocation" (Economic Justice for All, 1995:439).

This category of justice reflects the first and second principles of justice.

5.8.4 Information poverty: justice as enablement

This form of justice is concerned with the extent to which society enables or constrains the self-determination and self-development of individuals (Young, 1990). The modes of injustice as disablement include oppression and domination, preventing people from becoming fully who they are and preventing them access to the necessary material means needed to achieve their human well-being. Justice as enablement is therefore closely related to Sen's capabilities approach. These conditions of disablement are mainly due

to identifiable social factors such as actions of government and business that limit people's efforts to achieve what they want to be (Lötter, 2000:226). Certain conditions, such as poverty and natural disasters, furthermore contribute to the conditions that can disable people "…into lives far below their capacity" (Lötter, 2000:227). The problem is that poor people, which in many cases include the information poor, do not have the material means to develop themselves and to achieve human well-being and may therefore experience social isolation.

Human interaction and social isolation are two important notions in the discussion on the justice as enablement. Part of human self-development and self-determination is the fact that all humans are mutually interdependent. We all are to a certain level dependent on others to achieve our well-being and to satisfy our basic human needs. However, one crucial element of our self-development and self-determination is our ability to make our own choices – alone or in consultation with others. This ability not only allows human freedom, but also takes human responsibility into account. To make it relevant to information poverty one can argue that the lacking of emotional or intellectual ability to make choices makes people suffer because of their dependency on others to make basic decisions regarding their personal lives.

Based on the importance and value of human interdependency Lötter (2000:230) argues that caring for the disabled and those that are dependent on others to satisfy basic needs should not focus on doing as much as possible for them, but rather on encouraging their independence. This will assist in achieving their human well-being.

In applying the justice as enablement to the information poor I argue that information-poor individuals and communities frequently experience conditions of economic, social and political marginalisation that constrain their development. A variety of reasons exists. The most important is probably, once again, a lack of access to essential information needed for development as well the inability to benefit from access to essential information. Added to this is of course the fact that important resources needed for development are not always accessible even though the information related to development itself might be available. I dealt with this relationship in depth in Chapter 4. Illiteracy and information illiteracy also strengthen a feeling of powerlessness that can lead to the constraining of information-poor peoples' lives. This form of justice must therefore focus on

lessening information-poor communities' levels of what can be referred to as "information dependence" and powerlessness and implement positive education initiatives, such as development of human intellectual capacity, that can contribute to the actualisation of the self-determination and self-development of people (Britz, 2004).

How can the role and functioning of dependence be applied to the information poor? Depending on the reason for information poverty, information-poor people are in many cases "intellectually" disabled – not because they lack the necessary intellectual abilities, but because of a lack of education or related information skills to access the appropriate information, to understand and apply it correctly and to benefit from it. These disabilities severely limit their capability to make independent choices regarding important decisions in their lives. This not only degrades the information poor, but it creates a situation of powerlessness. This can add to further harm of the information poor. In many cases, particularly in the developing world, the information poor are voiceless and lack the political power and access to information channels to let their voice be heard. Information poverty is indeed a disabling condition that places restrictions on the ability of the information poor to make their own decisions and to develop themselves to achieve their own well-being.

This category of justice reflects the second principle of justice.

5.8.5 Information poverty: justice as distribution

The Aristotelian notion of distributive justice is linked with the equitable distribution of goods and a major part of the discussion on justice refers to the fair distribution of goods. Distributive justice can best be described as the fair distribution of income, wealth and power in society with specific reference to the satisfaction of basic needs (National Conference of Catholic Bishops, 1997). In other words, it has to do with the way in which benefits or burdens are allotted in society (Rawls, 1971; Frankena, 1962). Benefits include amongst other wealth (high income), opportunity for education, access to information that enables participation in various socio-economic and political activities and access to resources that provide opportunities in society for achieving well-being. Burdens, on the other hand, will include low income and poverty, lack of access to essential resources, including access to essential information, together with hard work accompanied by low wages. Distributive justice is therefore concerned with the formulation

of principles that must lead to a fair division of benefits and burdens in a society. These principles of justice must prohibit not only the unfair distribution of benefits and burdens in society, but must also ensure that distributive decisions are not made on arbitrary grounds.

Although different criteria for distribution can be distinguished (merit, need and equality), distributive justice in this context is primarily approached from a social perspective focusing on the basic information needs of the information poor. A good indicator of whether distributive justice prevails in the information and knowledge society is to note what different people and societies have, not only in terms of access and accessibility of essential information, but also in terms of the ability of those individuals and groups of people to benefit from the access gained. Distributive justice will ask:

- Who are the information rich in a particular society?
- What are the benefits they gain from being information-rich?
- How did they acquire their information wealth?
- What is the burden on the information poor and what are the main causes thereof?
- Why is there an unequal distribution of education opportunities within one country but also between countries?

In the information and knowledge society, operating within the new paradigm of a dematerialized economy, the information poor suffer many forms of distributive injustices. The growing gap between the information rich and the information poor is in many societies staggering. The information rich are in most cases well – educated and have the material means to pay for access to valuable information that allows the materialisation of opportunities. Conversely, most of the information poor in the developing countries are illiterate, do not have the material or infrastructural means to access the information needed and by implication are marginalised in terms of the materialisation of their opportunities in life. Affordable broadband access to the Internet is a near given in most information-rich countries and societies. The information poor living in Africa, for example, can hardly afford access to the Internet and in most cases access to the Internet is not even available. I will elaborate on this issue in the next chapter.

Distributive justice should therefore allow for the affordable or even free distribution of essential information to those who do not have the material means to afford it. Such an application of distributive justice will furthermore promote the creation of equal opportunities not only to participate in the different political and socio-economic activities in society, but also to achieve human well-being. Society thus has an obligation to the poor to fulfil these basic information needs. The only exception would be when resources are so limited that it is strictly speaking impossible to do so.

Based on the third principle of justice that I distinguished it can be argued that the unequal distribution of benefits and burdens in society is not necessarily unjust. There are, for example, good economic reasons why the COE of Intel makes more money that a professor or why people living in the US might have more affordable and easy access to the Internet than someone who lives in a rural town in Zimbabwe. However, what should be investigated is whether there are patterns in the divisions of burdens and benefits (Lötter, 2000:221). For example, does gender or race play a role in the division of burdens and benefits in society? If so, it should then be investigated whether some form of injustice is responsible for the fact that some people, based on their race or gender, are less well off than others. Why, for example, are fewer girls than boys on the African continent attending school (Britz, *et al.*, 2006; African Economic Outlook, 2006)? If the difference is based on a gender prejudice, it represents a kind of distributive injustice that needs to be investigated.

Rawls allows certain forms of inequality in society as long as they are to the benefit of the poor. I repeat his second principle here for the sake of the argument:

"Social and economic inequalities are to be arranged so that they are both (a) to the greatest benefit of the least advantaged and (b) attached to offices and positions open to all under conditions of fair equality of opportunity" (1971:83).

Inequalities are therefore only allowed if they benefit the information poor. If not, these inequalities are viewed as unjust. In other words, paying researchers a high income can only be justifiable if their research findings also benefit the poor and marginalised. The payment of copyright fees by universities to gain access to and use essential educational information is allowable if it benefits the students and society as a whole. As I have argued

earlier, the current trend in intellectual property legislation favouring the financial protection of the distributors of information products and services at the expense of access is strongly contested as it is believed to be unjust. One can indeed ask the question: how can the distributors of information products and services increase their profit margins – in some cases by more that 200% – while the actual production and marginal cost have decreased dramatically due to modern ICT? There does seem to be a pattern in current international intellectual property regimes that could be suspected of being unjust.

Related to the abovementioned issue is the unequal distribution of wealth between the actual creators of knowledge versus those that package and distribute it. Currently authors of scholarly publications, mostly journal articles, are not or scarcely compensated for their work, while the publishing houses make the profit (Lor & Britz, 2005).

Although distributive justice based on merit therefore allows the treatment of certain categories of information as a commodity that can be owned, distributed and used unequally in society, it can never override the principle of affordable or free distribution of essential information to poor and marginalised people.

This category of justice reflects the second and third principles of justice.

5.8.6 Information poverty: justice as contribution

This form of justice is closely linked to distributive justice and according to Ebener (2005:5), distributive justice without "…the fine points of contributive justice are moot". Justice cannot really be served if one fails to understand how contributions are made and by whom in order to ensure fairness in distribution.

Contributive justice plays a central role in the social teaching of the Catholic Church and is defined in the US Bishops' Pastoral Letter as the principle according to which people in a society are enabled to make a productive contribution to the general well-being of society (National Conference of Catholic Bishops, 1997:43). According to the social teaching of the Catholic Church, contributive justice emphasises three notions of social justice. These are:

- Duty: All who are able to create the goods and services necessary for the welfare of the whole community have a duty to contribute to the well-being of society. In the words of the belated Pope Pius IX: "It is of the very essence of social justice to demand from each individual all that is necessary for the common good" (National Conference of Catholic Bishops, 1997:43).
- Productivity: Productivity is a prerequisite if a society wants to have the necessary resources to serve the well-being of all. Individuals in society therefore have a responsibility to be productive to ensure that the means of serving the well-being of the community is found. However, productivity should not only be about economic efficiency. Patterns in productivity, such as discrimination in the workplace, and the well-being of workers should also be considered.
- Contribution of society: The organised economic and social institutions have a duty to organise their activities in such a manner that individuals can have the opportunity to contribute towards the well-being of the community without sacrificing their freedom and human dignity. "Work should enable the working person to 'become more a human being' more capable of acting intelligently, freely and in ways that lead to self-realisation" (National Conference of Catholic Bishops, 1997:43). The emphasis on self-realisation reflects Sen's notion of abilities and achievements. The document calls in particular upon business, labour unions and other groupings in society that shape of economic life to give in a more systematic manner towards the common good.

Contributive justice is therefore primarily concerned with the responsibilities and duties of members to not only the group to which those members belong but also to the broader community and even strangers. It requires a person who receives certain benefits from a society to maintain and support that particular society. Failure of contribution normally ends with enjoying fewer or even no benefits from society. As a form of justice it is not in the first place about the concern for the "self", or self interest; it is about our relationships in a given community and about our moral responsibility and legal duties to be contributing members of society towards what Aristotle and Aquinas called the "common good". It is about my time, resources and talents that I contribute toward the common good (Ebener, 2005:6). This is the reason why we pay taxes and are willing to pay for the use of certain information that is protected under intellectual property legislation. However, paying taxes is not only about what I can get back, but is more of

"…an unconditional contribution towards the common good" (Ebener, 2005:4). Contributive justice ensures that confusion and destruction is avoided in society and that all benefit from the same advantages that are offered. In the era of globalisation "society" has been redefined in a much broader sense. This implies that my duties and obligations towards "society" are not anymore limited to a specific group of people located in a particular geographical area.

Contributive justice also calls upon governments and other organised structures in society, private or public, to make a contribution to the common good. Governments, for example, have the responsibility to ensure that the rights of individuals in a community are protected, their human dignity respected and the least in society taken care of. This implies amongst others the fair distribution of those information and other goods and services that are regarded as common goods. The social and economic structures of society need to be organised in such a manner that everyone has an equal opportunity not only to contribute towards the creation of wealth in society, but also to participate in the various socio-economic and political activities in society.

The basic principles underlying contributive justice are very well articulated by the Kentucky Council of Churches which released in 1991 the following principles based on contributive justice in a "Call for Justice" statement (Commission on Justice Ministries, 2004):

- The mutual responsibility of all people, both as individuals and groups, for each other must be recognised.
- The participation in the opportunities and responsibilities of citizens in society must be promoted.
- Support and resources adequate for basic life necessities must be provided.
- All citizens must be encouraged to examine how existing social structures maintain injustice.

Violation of the principles of contributive justice includes free riders in the market place (see also Chapter 4). Free riders are those who benefits from advantages offered by the market system without wanting to contribute to the production of those products and services or the cost of distributing them. A case in point would be those who make use of local government services such as libraries, running water and electricity, without paying

(direct or indirect) for them. Contributive justice is also violated in those cases where individuals purposely deny others the use of a common good. There are several powerful illustrations. Creating viruses and distributing them on the Internet serves as one such an example. By spreading viruses on the Internet people are limited in their use of this common tool. Another example relates to insurance fraud – which can in essence be referred to as "information – fraud". If a false claim is not detected by the insurance company, a wrongful payment will be made to the claimant, which in turn will drive up the insurance cost. The additional cost will be carried over to all policyholders (O'Boyle, 2003:22). Governments and other institutions that shape the economic life in a society also violate the principles of social justice when they fail to create a system where all have the equal opportunity to participate in socio-economic and political activities. Failure by governments and other related institutions to fairly distribute basic services and products in society to those who need them to satisfy their basic needs can also be considered a violation of the principle of contributive justice.

Applied to information poverty, contributive justice would among other things be concerned with the production and dissemination processes of information, particularly essential information. For the logical flow of the argument, I repeat the definition of essential information here. By essential information is meant that information that is required for survival and development. This includes information related to the basic minimum needs of humanity, as well as information tools for trade and economic development – information essential for the development of capital generation and the infrastructure needed to support it, which includes backbone industries, basic science, and survival services in health, education, welfare, agriculture and labour. Since there is a societal benefit from using essential information, it is regarded as a public good, which is in most cases non-exclusionary in nature.

Contributive justice will ask the following questions regarding essential information:

- Who is involved in the production processes (creation) of essential information and is enough produced to meet the basic needs of people?
- Is the distribution of essential information in the marketplace fair and do government and other agencies involved in the socio-economic and political processes adhere to their moral obligation to ensure

affordable and accessible essential information for all? This question is based on the premise that essential information, which is non-exclusionary in nature, could be funded be means of taxes, donations and/or advertising.

This form of justice also emphasises the duty and moral obligation of knowledge creators to make a positive contribution to society as a whole. It also implies that individuals and communities must be permitted an (equal) opportunity to develop to their full potential and in the process make a substantial contribution to society that will benefit society. An example of contributive justice is the obligation on members in society to share their knowledge that will contribute to development of society (Britz, 2004:203).

By the same token, society has a responsibility to create an environment that is conducive for individuals to do research and produce information products that can be to the advantage of society. This category of justice can also serve to maximise the use of information for productivity. Based on this viewpoint it can be argued that society also has a responsibility to create a legal and moral environment that will stimulate creativity and productivity – for example, the encouragement of knowledge creation.

Following from this it can be argued that contributive justice also implies the effective enforcement of protective measures to ensure the fair protection of the economic interests of authors and publishers. Society has a duty to encourage and foster this participation and productivity in a climate that does not interfere with the freedom and dignity of an individual or society. For example, the promotion and protection of indigenous knowledge should not interfere with the practice of the indigenous culture or otherwise insult or disparage that culture. The patenting or other development of indigenous fauna and flora that results in the inability of indigenous peoples to engage in the use of the fauna and flora, through exclusivity or depletion or alteration, interferes with the basic freedom of the indigenous people to participate in their culture and can be seen as a violation of the principles underlying contributive justice.

Other forms of violation of the principles of contributive justice which are of specific relevance to information poverty include the following:

- The current trend in international intellectual property rights legislation benefiting the disseminators of information products and

services (mainly publishers) at the expense of the users. This brings into question the dual nature of intellectual property regimes according to which lawmakers have not only a responsibility to ensure the fair protection of the creators of information products and services and the economic interests of the distributors of these information products, but also the obligation to ensure fair and affordable access to the information products and services (Drahos, 2003; Hamelink, 2000).

- The profits that scientific publishers are making. In most cases it is exorbitant and at the expense of the developing world which cannot afford to pay for access to essential scholarly journals (Hamelink, 2000; Nayyer, 2002).
- The trend of depriving the original creators of knowledge of their rightful economic benefits. It has become common practice that authors and other creators of knowledge sign off their intellectual property rights (mostly the economic rights) to the publishing houses and other distributors of information products. This runs contrary to the principle of contributive justice according to which society has an obligation to ensure the creation of an environment that is conducive for individuals to be able to do research and produce information products that can be to the advantage of society.
- Intellectual property rights theft. The software and entertainment industries in particular are suffering big losses due to intellectual property rights theft. These "information free riders" violate the principle of contributive justice because they do not contribute to the production and disseminating costs of information but nonetheless want to benefit from it.

This category of justice reflects the second and third principles of justice.

5.8.7 Information poverty: Justice as retribution

This category of justice is also known as punishable or transformation justice. It is based on the principle that any normative mechanisms that are responsible for the application of justice would be hollow without an enforcement/punishment component. It does not only refers to the fair and just punishment of the guilty, but also how to transform and change existing practices and institutions as well as human behaviour (Lötter 2000:231). As a form of justice it aims to restore the position of both the offender and the victim to their appropriate positions in society.

The interpretation and application of this form of justice do not always imply criminal sanctions only, but must also ensure some form of retribution for harm inflicted in the past. This is different from a concept of just compensation in transactions (commutative justice) which is prescriptive. Retributive justice is post-scriptive as it is used to punish, correct or retribute past behaviour. Retributive justice comes into play, for example, on the debate whether to consider indigenous knowledge as property that belongs to indigenous people and whether use by First World developers is then a seen as a "taking" (owning) of that collective property.

Retributive justice therefore deals with the question of how society deals with the victims of injustice as well as with those who are responsible for inflicting harm on the victims. There are different ways of dealing with past injustices. One way would be to put the focus primarily on retribution and to look at ways to blame and punish the guilty. It is more or less in line with the idea that justice must prevail even if it means the end of the world – reflecting the Latin proverb: *fiat iustitia, pereat mundus*. This can be seen as the negative side of retributive justice because the focus is on revenge and retaliation that in many cases involve emotions such as hate, bitterness and anger. Another way would be to focus on the transformation of society and its institutions in such a way that it becomes nearly impossible to repeat the injustices of the past (Lötter, 2000). The process of transformation in Germany after World War II is a good example. The third option would focus both on retribution and transformation. The focus will be on investigation of past injustices, assigning of responsibility, but also on how to reconcile people, transform society and institutions and to develop new and shared values to ensure that past injustices will not happen again. The working of the Truth and Reconciliation Commission in post-apartheid South Africa serves as a good example.

The last option is the preferred option in dealing with past injustices. Not only does it take past injustices seriously and work towards reconciliation, but it also allows the victims of those injustices to raise their voice and be heard on their experiences of society's injustice against them. However, society must be open not only to listen to the victims of injustice, but also to create new structures and policies and to mutually develop a set of core values. Lötter (2000:234) formulates it as follows: "Openness to new demands that injustice be rectified thus fulfils a vital function in protecting the moral and social health of a constitutional democracy". Such openness

presupposes a system where victims can mobilise and let their voice be heard against injustice and against the violation of their humanity (Waltzer, 1983). The information poor that are excluded from access to essential information and being oppressed and not allowed to view their thoughts must have a platform and opportunity within a system to mobilise themselves and rightfully protest against economic, social and political oppression that violates their basic information rights. The information poor must be allowed to take responsibility for initiating social changes that will not only ensure the protection of their information rights, but will also restore their human dignity. Part of the process will be to determine who caused the violation of those information rights, the effect thereof and how to compensate the information poor appropriately. Such actions will help to restore their human dignity and prevent future injustice.

It is important, in the process of restoring justice and of transformation, to have a very clear vision of what kind of harm has been inflicted on victims and how to correctly assign responsibility to the guilty. The word responsibility originates from the Latin *respondeo* which relates to accountability, blame and punishment – in other words, to be accountable or answerable in terms of a relationship or obligation. It is a second-level normative concept, by which I mean it is always associated with a set of values and norms on which responsibility is based, but also judged. A person is being held responsible for something (Lipinski, Buchanan & Britz, 2004:235). Different degrees of responsibility can be distinguished. Shklar (1990) differentiates between active and passive injustice. Active injustice occurs when perpetrators of injustice purposefully inflict harm on others. Passive injustice occurs when people turn a blind eye when injustices happen. Injustice is tolerated and those who are the victims of injustice are ignored. In other words, passive injustice occurs "when people just stand around and do nothing, calm in the belief it could not be helped" (Shklar, 1990:3).

The distinction that I made in Chapter 2 between information content and information carrier is valuable and of relevance in this discussion regarding the assigning of responsibilities and the question of who can be held accountable for information-based wrong-doings. Different categories of responsibility can be distinguished. The first is functional responsibility, which refers to the function or role of ICT with regards to the effective and efficient flow of data. Based on functional responsibility it is, for example, possible to hold telecommunication companies accountable in those cases

where they failed to update and maintain those technologies that are needed to effectively communicate data.

There is also the distinction between moral and legal responsibility. Moral responsibility reflects a core set of values that are shared by a society or group of people. Moor (2001) distinguishes, for example, the following core shared values: happiness, knowledge, freedom, resources and ability. In this thesis I have argued that social justice and human rights, which can indeed be seen as an expression of Moor's core values, should form the basis for moral consensus and by implication of moral responsibility.

Legal responsibility on the other hand is based on and an expression of the moral consensus in society. Legal systems, for example, intellectual property rights, are developed to guarantee the legal protection of our shared values and human rights and also to ensure fairness and stability in society. Those who develop intellectual property regimes have therefore the moral responsibility to ensure fairness and the protection of the right of access to information. Legal responsibility also differs from moral responsibility in the sense that we might break the law while acting morally responsible.

In assigning responsibility it is very important to be clear on the distinction between being responsible and misfortune or loss of control. Five types of misfortune/loss of control can be identified (Buiter-Hamel, 1998:58-60). These are:

Ignorance: When a person is ignorant of the true nature of a situation or of the consequence of a specific action. For example, a person cannot be held responsible for the actions of a company when taking up a new job without having prior knowledge of the criminal activities of a company that trade in information products and services. Another illustration of being ignorant of the consequences of a particular action occurred in the building industry in the 1950s when people used asbestos as building material without being aware of the dangers associated with its use. In both these examples, it would be very important to prove true ignorance. Once a person becomes aware of the true nature of a certain situation or of the consequence of a specific action, she/he is responsible for taking action.

Force: There are certain conditions where a person acts under duress and where there is no other choice than to act in a certain way. Information professionals might, for example, be physically forced to provide illegal

information. To use force as an excuse to justify certain actions is only valid if there is proof that a person really had no other choices.

Skills: The lack of certain skills needed in a particular situation can be an excuse not to act, or not to be held responsible for any actions taken. For example, a person who cannot swim cannot be held responsible for not personally saving the life of a person who is drowning. However, the non-swimmer should then explore all other possibilities to save the life of the drowning person. In the same manner an information professional can not always be held responsible for the content of the information that she/he retrieved. This example is appropriate in those cases where information professional do not claim to be knowledgeable or subject specialists in specific areas. One can, for example, not hold information professionals responsible for the correct interpretation and application of complex medical information if such a person is not a trained medical practitioner.

Being out of control: There are certain situations/conditions beyond the control of a person that justify not taking any action, and according to which a person cannot be held responsible for certain actions or non-actions. Examples include natural disasters, a car accident or the breakdown of a computer which got struck by lightning.

The difference between responsibility and misfortune/being out of control certainly matters in assigning responsibility to those who inflicted harm in the past. Moreover, it is important to determine to what extent people or groups could have acted in cases of misfortune. For example, the authorities in the US could have acted earlier and more efficiently, based on the information they had, to contain the loss of lives in Hurricane Katrina in 2005. The same level of accountability could not be assigned to the Mozambique authorities during the devastating cyclone that hit the country in the early 1990s. In the latter case the authorities simply did not have enough information available, nor the communication infrastructure and other needed resources to assist people.

There are numerous examples of injustice that requires retribution. Employers exploiting their workers by paying low wages expose themselves to retributive justice. Governments allowing unjust policies, such as strict censorship, and the intellectual oppression of their people are also under the judgment of retributive justice. Lötter (2000:237) argues that passive injustice is highly relevant when discussing the link between poverty and

justice as retribution. For example, when rich people do not care for the poor and in some cases even allow them to die from ill health, Lötter's (2000:238) comment is significant: "Standing by while some people suffer from so much difficulties inflicted by a social disease like poverty, makes non-poor people guilty of acting unjustly through violation of the positive intent of principles and norms of justice". Applied to information poverty one can also ask the question to what extend society cares about the illiterate and uneducated in society for whom it is not a given to access and benefit from information in the same manner as the literate and educated in society?

The way in which indigenous knowledge has been treated in the past and is still treated today is also a clear case for retributive and transformative justice. The question is indeed whether modern intellectual property regimes do not inflict harm on indigenous people and their body of knowledge. Traditional communal rights and the formats or ways of expressing knowledge in oral tradition or by means of artifacts, do not translate well into modern intellectual property rights systems. Multinational corporations hence globally exploit indigenous knowledge with impunity, because insufficient provision is made for protecting indigenous knowledge in intellectual property regimes. The question arises: Can an inappropriate legal system be used an as excuse for not taking responsibility to protect indigenous knowledge from active exploitation and selling it to tourists, among others, at the expense of the indigenous people (passive exploitation)? In many cases the essence of the cultures of indigenous peoples is commoditised (Lipinski & Britz, 2001). It is a cause for grave concern that this cultural commoditisation in many cases occurs without the consent of the indigenous people or without compensation. Justice as transformation demands a fresh look at, for example, trademark legislation that will respect the cultural heritage of indigenous peoples, allow the restoration of their cultural dignity and ensure fair compensation for their creations.

This form of justice reflects the first and third principles of justice.

5.9 Conclusion

In this chapter I have illustrated the value of analysing information poverty from a social justice perspective. I have first shown, based on three core arguments, that information poverty is indeed a serious matter of social justice. Following from this I analysed social justice in terms of its scope,

application and functions. I argued that justice is a normative instrument that can be used to evaluate societies, and that it, as a social virtue, sets out important principles for the fair and equitable treatment of both the information rich and the information poor.

Based on the three principles of justice that I identified, justice must ensure that people (the information rich as well as the information poor) get what is due to them. What is "due to them" can differ from one context to another and also from one individual to another as long as it is based on fair and appropriate values shared by all.

The fact that justice seeks to recognise the human dignity and human well-being of all – irrespective of who they are – was shown to be fundamental to the understanding of justice. I further illustrated that our human dignity and search for well-being is closely associated with freedom.

In my deliberations on justice as a moral tool I argued that seven different categories of justice can be distinguished to deal appropriately with the different and complex moral issues raised by information poverty. These are briefly reiterated here. Justice as recognition can be broadly defined as the finding of ways to appropriately recognise and respect the humanity and autonomy of fellow beings. It insists on a pursuit of equitable treatment of all people because they are of equal moral dignity. Justice as reciprocity deals with the "nature and scope and content of fair terms of cooperation in the personal, social and institutional levels" (Lötter, 2000, 224). It also entails that the same rules and norms will apply in all similar situations. This will eliminate any arbitrariness in exchange relations. Justice as participation refers to the creation of equal opportunities. It implies the elimination of negative inequality, plus the elimination of the marginalisation of poor communities in society. Participatory justice positively emphasises the equality of all people in respect of access to equal opportunities. The purpose of participatory justice is, in other words, to ensure that each individual in a community has an equal opportunity to fulfill his/her life. Justice as enablement is concerned with the extent to which society enables or constrains the self-determination and self-development of individuals. As a form of justice it oversees the process whereby societies, based on their moral obligation and responsibility, allow human development to such an extent that people are enabled to make their own choices in order to fulfill their human well-being. Justice as distribution can be described as the fair distribution of income, wealth and power in society with specific reference

to the satisfaction of basic needs. Justice as contribution is closely linked to distributive justice and relates to the manner in which society is organised in order to enable people to make a productive contribution to the general well-being of society. Justice as retribution is also known as punishable or transformation justice. It is based on the principle that any normative mechanisms that are responsible for the application of justice would be hollow without an enforcement/punishment component. It does not only refer to the fair and just punishment of the guilty, but also to how to transform and change existing practices and institutions as well as human behaviour.

The question then arises which guidelines, based on social justice, can be formulated to address the moral concerns raised in this thesis. In the next chapter I will explore this issue.

CHAPTER 6

INFORMATION POVERTY AND MORAL GUIDELINES

6.1 General introduction

In Chapter 5 I made a strong case for the fact that in order to address the moral challenges facing information poverty, there needs to be a moral consensus that is in some sense universal in terms of its recognition and its application. Social justice and human rights are the two fundamental tools that have this universal validity and that can be used to address these moral concerns.

In line with Rawls (1971) and Miller (1999) I also argued that social justice and human rights, as the two proposed universal moral tools, can only be successfully applied if they meet two conditions. First there must be a basic structure in society, which in this case constitutes all those bodies, national and international, that are confronted with the moral challenges posed by the conditions that lead to information poverty. Secondly, all parties, both the information rich and the information poor, must have an equal voice when it comes to the interpretation and application of these two normative tools for alleviating information poverty.

In this chapter, based on the abovementioned conditions, I have identified eight moral guidelines that can be used to address the major moral concerns associated with information poverty. Examples, mostly taken from the developing countries and Africa in particular, are used to illustrate the practical application of these guidelines.

I start this chapter by describing the economic realities and the complex notion of information to illustrate the complexity of applying social justice as a moral tool to address information poverty.

6.2. Social justice and economic realities

In the application of social justice to information poverty two preconditions related to economic realities need to be met. First, ethical idealism must be precluded and it should not become in the words of Lyotard (1985), just another grand narrative. Secondly, that social justice should not be based on a political ideology (Sterba, 1991). We should therefore not romanticise the

idea of a prefect moral economy, but we certainly should value the core virtues underlying the economic processes. In line with Booth (1993) as well as Calabrese (2005) we have to ask the question to what end our economic lives and activities are geared.

When considering the manner in which a moral economy, based on social justice, can be applied in information-poor communities, it must be born in mind that free market forces mainly determine and control the economic processes in the global information era. Ethics, reflecting core values such as social justice and human rights, primarily play a normative role to ensure fairness in these economic processes. Economic realities, such as the regulation of production and distribution processes by supply and demand with the accompanying uneven distribution of certain products and services, cannot be radically changed by applying ethical imperatives (Britz, 2004). Thompson (1991), in his work on moral economy argues that in economic system (he particularly referred to the British system) an ethical tension exists between equality (in terms of human rights) and inequality (in terms of advantages that economic systems offer certain persons and groups). Rawls (1973:65) accommodates this tension between equality and inequality in the different socio-economic and political spheres in his second principle of social justice. I quote this principle again: "Social and economic inequalities are to be arranged so that they are both a) reasonably expected to be to everyone's advantage, and b) attached to positions and offices open to all".

A global economy, based on social justice, must therefore ensure that the equality of all people is maintained – for example, that basic human rights are not affected, and where inequality does occur, that it does not disadvantage a poor and underprivileged person. Barbour (1993:48) strongly argues that: "…inequality is justified, in short, only if it helps to correct some other form of inequality or if it is essential for the good of all".

In the application of social justice to the different socio-economic activities attention should also be given to the role of the big corporations and the state as instruments of power. Huber (1993) argues that the demand for justice is primarily directed at those in power. This particularly relates to the manner in which essential information products and services should be distributed and the creation of equal opportunities for all to participate in the different socio-economic and political activities.

6.3 Social justice and the complexity of information

Social justice as it is applied to information poverty is further complicated by the very nature of information. In Chapter 3 I have elaborated in detail on the different characteristics of information and illustrated the relationship between information and poverty. In the following paragraphs I will elaborate on the unique characteristics of information that relate to social justice.

6.3.1 Information is instrumental to all human activities

Information and access thereto can be equated to fresh air. Without it we cannot survive. Information is instrumental in all human activities, ranging from gathering information on where to find food to searching for information on the Internet about stock market activities.

Information therefore has instrumental value because we use it to improve our capacity as humans to cope with our environment. As such, information can be valued as a common good that benefits all. Access to information is therefore regarded as an instrumental and basic human right and is for this reason closely associated with social justice. What complicates the relationship between this information right and social justice is the fact that the right of access to information is limited to the information a person needs to satisfy other basic rights. The application of social justice needs to determine these categories of information while bearing in mind the different contexts of the use of information.

6.3.2 The two spheres of information

Apart from having a "common good value", information also has a competitive value and it can give a "knower" a competitive edge because he/she might have access to and the use of a scarce resource (information) that is needed to gain a livelihood. In this sense information can be subjected to the laws of supply and demand and an artificial scarcity is created by means of intellectual property laws and other regulations. In turn it leads to the creation of asymmetric information markets, the creation of information monopolies and an unequal distribution of information. The competitive value of information raises some vexing questions regarding the fair production, protection and promotion of information (Lor & Britz, 2005).

The problem is also that the same information can have more that one type of value. Information which is created as part of the common good, can end

up as a competitive value in the marketplace due to a variety of reasons, including intellectual property rights and the efforts of publishers to stay in business (Lor & Britz, 2005). Information that inhabits two different spheres, each with its own value system – one in the free market system driven by capitalism and the other in the domain of the common good – can make the application of social justice complex and difficult.

6.3.3 Information as a merit good

Information, in terms of its supply, can also be treated as a merit good. At a minimum level there is a societal benefit in the provision of information in the marketplace. The provision of certain categories of information is benefiting society beyond the benefits to the individual. In other words, it has a value for others, apart from its value to the person who accessed the information. Education serves as prime example, and the policy that underpins public education with public funding reflects this view of information as a merit good. The positive externalities created by the provision of education are considered sufficient reason to warrant public support for public education (Lester & Koehler, 2003:166). The provision of public funds to support public libraries is based on the same argument.

From a social justice perspective the challenging issue will be to determine the point at which the societal benefit of information provision is greater than the societal cost that will allow a merit good approach. The fair measurement of this point might be difficult to determine.

6.3.4 Economic complexity of information

Information differs in many respects from other resources, which makes it difficult to address in both moral and economic terms. Information is not depleted by its use. Using information does not diminish the amount of information available to others. Actually, the use of information "…has at least the potential for making the volume of information increase" (Lester & Koehler, 2003:164).

Another unique feature of information that has a bearing on social justice relates to the production and reproduction cost of information. It is hard to calculate the cost of information production, reproduction and dissemination accurately. This is mainly because it is hard to determine indirect and other hidden costs. Unlike most other resources, information can be reproduced today by using modern ICT, at nearly zero marginal cost. Eben Morlen,

professor of law at Columbia University, remarks: "If you could make enough food to feed everyone on earth by baking one loaf of bread and pressing one button, what would be the moral case for denying anyone food?" (cited in Bekker, 2003:1). However, reproduction at zero cost is only part of the picture and can be misleading. One must bear in mind the cost associated with research, the use of electronic media and labour to ensure a final product of high quality. Also, cost sometimes only reflects those costs associated with the conduit (carrier) and not the content itself. To therefore assume, from a social justice perspective, that the marginal reproduction cost of digital information is zero and therefore justifies the free distribution of information is not only an economic but also a moral fallacy. Costs are indeed reduced, but have certainly not been eliminated.

6.3.5 Access to and accessibility of information

For the purpose of the moral analysis of information it is important to distinguish between information as content and information conduits, as I explained in Chapter 3. Information conduits, which include language, books, CDs and other electronic storage devices, represent the information resources that are used to store, package and carry the message (content). As such information conduits have the following attributes:

- People can be excluded from their use. For example, if I borrow a book from the library it might exclude another user from access to the book.
- In some manifestations, for example, information available on the Internet, many people might have access to the same information resource at the same time.
- Access to the conduit does not guarantee access to the content. For example, a person might have access to a book in Russian, but due to an inability to read Russian cannot access the content.
- Access to the conduit and content does not guarantee beneficial use of the information. People need the intellectual ability to apply it successfully.

This important distinction between access and accessibility needs to be reflected in any deliberations on social justice and the fair distribution of information in the marketplace.

6.4 Moral guidelines based on social justice

Bearing in mind the economic realities and information complexities, and based on social justice and human rights as explained in the previous chapter, I propose eight moral guidelines that can be used to address information poverty. A summarised version of these guidelines has been published in the Journal of Information Science (Britz, 2004), and a number of the African examples have been summarised in the article published in the International Information and Library Review (Britz, *et al*.,2006).

Guideline 1: Each person in the community has an equal right of access to essential information required to develop and exercise other basic rights

This guideline is based on the core principle of the equality of all people, irrespective of who and what they are, and on the fact that people have certain basic human rights. This is also based on reciprocal justice and justice of recognition according to which no negative discrimination based on among others race, gender, religion or economic status may occur with regard to access to essential information needed to satisfy basic human needs. Reflecting Rawls's first principle, this right of freedom of access to essential information may not be affected or compromised for any greater economic gain. It is furthermore a positive right and corresponds with the duty of society, and more specifically the state, to ensure that essential information is available and accessible. This right is thus considered fundamental and inalienable.

There are a number of examples that meet the criteria of social justice as expressed in this guideline. I highlight three:

- The South African Constitution, which protects this fundamental information right;
- Egypt's vision of access to information for all its citizens;
- The eEurope project.

South Africa entrenched the right of access to information in its Constitution, and passed a law, the Promotion of Access to Information Act, Act No. 2 of 2000, that protects its citizens' right to access essential information (Promotion of Access to Information Act, 2000). In the Constitution, Chapter 2, Section 32[1] it is stated that everyone has the right of access to information held by the State, while everyone has the right of

access held by any other (natural or juristic) person which is needed for the exercising or protection of any rights. Section 32[2] mandates the South African Parliament to pass legislation that will give effect to the rights in Section 32[1], and states that provision may be made for reasonable measures to assist the State in the administrative and financial burden that will be brought about by the exercising of the right of access to State-held information.

The main intention of the Act is made clear in Section 9 where it is stated that the Act must (Ackermann & Britz, 2006):

- give effect to the constitutional right of access to information;
- give effect to the reasonable limitations provided for in the Constitution;
- provide for the "vertical" and "horizontal" working of the Act by providing for access to records of public and private bodies;
- make the access to records as swiftly as possible; and
- empower everyone who wants to use the Act by enhancing knowledge about rights of access and the functions and records of public and private bodies.

It is clear, based on the working of the Act, that this right is viewed by the South African government as a positive right according to which the State has a responsibility to ensure that its citizens can exercise this right. Public and private bodies must have manuals available describing information procedures and requests and an information officer must be appointed to manage information request for citizens. If access to information is refused, a reason for doing so has to be stated and the aggrieved party may follow legal procedure if dissatisfied with the reasons. Also, the information officer has a duty to assist information requesters in the following manner:

- An illiterate or disabled requester may submit an information request orally, and it is the responsibility of the information officer to reduce it to writing (section 18[3]);
- The information officer must render reasonable assistance free of charge (Section 19[2]);
- If the request refers to a record that is in possession of another public body, the information officer has to transfer the request within 14 days to the mentioned public body (Section 20).

The Egyptian government also made a conscious political decision that access to information is a basic necessity for all its citizens and therefore supported the notion that access to the Internet should be affordable and that there must be a computer for every household. As an outcome of a national information project which was initiated by the Egyptian government, it was decided in 2000 that Internet services would be provided for free to all Egyptian citizens. The only cost would be the telephone call. This was followed by a so-called "computer for every home" project according to which the government subsidises computers for poor households by means of easy installments (El Gody, 2003).

Another example stressing the value of access to information is the eEurope initiative which was initiated in 2002 and according to which an affordable information infrastructure must be developed in Europe that will allow all access to different categories of information, including essential information such as education, health information and government information (The Information Society, 2003).

Guideline 2: Access to essential information should also imply the accessibility and benefit thereof

As I pointed out at the beginning of the chapter, this ethical guideline is necessary since access to information does not necessarily imply the accessibility thereof. If the Namibian government should, for example, decide that all essential government information should be made available in electronic format only, this would mean that the vast majority of citizens could not exercise their right of access to essential government information because of a lack of access to computers and/or the Internet. In this case, in support of Huber's position (see 6.2) one can argue, based on contributive and distributive justice, that the state, as an instrument of power, has a responsibility regarding the fair and equal distribution of government information to ensure that it is also accessible by other means, such as printed newspapers and the radio.

Distributive and contributive justice, therefore, implies not only the fair distribution of information, but also making it accessible and affordable. However, accessibility to and the affordability of essential information alone are not enough. Based on the view that essential information is a common good and that it is instrumental to the creation of human well-being

(capability approach), people must also be able to benefit from access to information. It can therefore be argued that, based on justice as enablement and Sen's capability approach, institutions (both government and non-government) should launch educational initiatives to enable the benefit of access to information.

I have argued in this thesis that the most valuable asset of an information and knowledge society is its intellectual capital and that societies, to be able to become information and knowledge societies, must invest in their people. Education and investment in human capital are therefore fundamental in addressing information poverty and in the development of human capabilities. Based on Sen's capability approach it is an imperative that society should meet the conditions that will allow the development of the human intellectual ability (education) that determines their well-being and allows them to achieve their goals. Social justice, in particular as expressed in this guideline, requires the making available of resources to allow not only accessibility of essential information but also to allow the development of humans to benefit from the information and allowing participation in different socio-economic and political activities.

As I pointed out earlier, the affordability of information proves to be one of the major obstacles regarding access to information. Access to electronic content at first glance appears to offer an economic solution. After all, once scientific and scholarly material has been put on in an electronic format on a publisher's web server, few additional costs are generated even though the number of use and of document accesses might increase. The expectation is therefore that modern ICT can actually contribute in a positive manner to narrow the economic divide between the information rich and information poor. The reality is however that the publishers of electronic content are also driven to make profit and, as I have argued (see 6.3.4), even though reproduction cost has come down dramatically, the overall cost of digital information production has not been eliminated. Electronic publishers also guard their intellectual property vigilantly. The problem therefore remains, namely that the normal commercial cost of electronic journals, handbooks and databases are beyond the reach of many institutions in the developing world. In this context reciprocal justice demands fairness in these exchange relationships.

A further important aspect of the accessibility of information relates to the way in which the content is packaged – i.e. the medium in which the

information is presented, must not be contextually unfamiliar to the receivers thereof or in a language that is totally inaccessible.

Africa is a good case in point when it comes to the justification of this guideline. Africans are to a certain degree in a privileged position when it comes to language and access to the global body of knowledge. A large number of Africans living on the continent can speak or understand either French or English, two international languages that have a prominent representation on the Internet. Furthermore, both languages are the dominant political, economic and scientific languages on the continent. The drawback is the low level of literacy (Britz, *et al*.: 2006). In the 2005 the average illiteracy rate on the African continent was 35%. One sign of hope is the fact that the average illiteracy rate of people between 15-24 is substantially lower at 20% (African Economic Outlook, 2005:581).

Moreover, the problem is not so much the ability of Africans to understand foreign languages as the preservation and promotion of their own indigenous languages. There are more than 1000 languages spoken on the African continent, many of which do not have a written form. Also, very little scholarly and other scientific work gets published in local African languages (Britz, *et al*.: 2006). This excludes the majority of the world's population from a valuable source of indigenous knowledge and therefore reaffirms the importance of this guideline.

I will use a number of examples to illustrate where social justice is fulfilled in respect of the accessibility of information and the ability to benefit from use of information. The first two examples refer to initiatives by publishers and other distributors of information to make scientific and other essential information accessible and affordable to specifically developing nations. The following two examples focus on language initiatives to overcome the problem of access to information, and finally I will highlight some educational initiatives aimed at the education of people to benefit from access to information.

The first two initiatives discussed are:

- African journals projects and
- Open information movements.

The first of the African journal projects is the African Journals Online Project (AJOL). The launching of the (AJOL) in 1998 can be seen as an effort to make Africa's own body of scientific knowledge more accessible to the world. As such the AJOL not only displays the tables of contents of African journals but provides an article delivery service to African scholars. This is done free of charge. AJOL, running on Open Source software, is now managed from South Africa in partnership with National Inquiry Service Center (NISC). It covers over 220 titles. Strict criteria apply for submission to the AJOL, including that is must be scholarly, peer reviewed and published on the African continent (AJOL, 2005). The NISC also launched the NiPAD database that provides access to more that 2 million African records in 40 databases, some with full text links (NICS, 2006). A project similar to the AJOL is the USA based Michigan State University's African eJournal project (AEJP). This initiative aims at making African scholarly journals electronically available (Rosenberg, 2002:54).

There are other initiatives by scholars and scientists to make their knowledge more freely available, without the unnecessary restrictions of intellectual property regimes, as is expressed amongst other in the Open Access and Creative Commons movements (2000). Education, and in particular scientific knowledge, is viewed as a merit and public good that benefits society more that individuals. The aim of the Creative Commons is for instance to "…use private rights to create public goods: creative works set free for certain uses. Like the free software and open-source movements, our ends are cooperative and community-minded, but our means are voluntary and libertarian. We work to offer creators a best-of-both-worlds way to protect their works while encouraging certain uses of them - to declare some rights reserved" (Creativecommons, 2000).

The Open Access Movement can be defined in short as the free online availability of digital content (Wikipedia, 2006). There are two major statements on the Open Access Movement. One is the Budapest Open Access Initiative of 2002 and the other the Berlin Declaration on Open Access to Knowledge in the Science and Humanities (2003). The Budapest statement recommends two complementary strategies or roads to open access (Budapest Open Access Initiative, 2004). The one is self archiving and the other open access publishing. One of the main goals of the Berlin declaration is to disseminate knowledge, through this open access paradigm, via the Internet (Berlin Declaration, 2003). The common thread of the Open

Access Movement is therefore to persuade scholars and other researchers to make their knowledge freely available on the Internet.

The following example focus on language initiatives to overcome the problem of access to information and the ability to benefit from access gained. I have argued that access to a language is essential for accessing information (Chapter 3). The UNESCO Universal Declaration on Cultural Diversity is a very good example in support of this guideline (UNESCO, 2002). I quote articles 5 and 6:

> *Article 5 - Cultural rights as an enabling environment for cultural diversity*
> Cultural rights are an integral part of human rights, which are universal, indivisible and interdependent. The flourishing of creative diversity requires the full implementation of cultural rights as defined in Article 27 of the Universal Declaration of Human Rights and in Articles 13 and 15 of the International Covenant on Economic, Social and cultural Rights. All persons should therefore be able to express themselves and to create and disseminate their work in the language of their choice, and particularly in their mother tongue; all persons should be entitled to quality education and training that fully respect their cultural identity; and all persons have the right to participate in the cultural life of their choice and conduct their own cultural practices, subject to respect for human rights and fundamental freedoms.
>
> *Article 6 - Towards access for all to cultural diversity*
> While ensuring the free flow of ideas by word and image, care should be exercised so that all cultures can express themselves and make themselves known. Freedom of expression, media pluralism, multilingualism, equal access to art and to scientific and technological knowledge, including in digital form, and the possibility for all cultures to have access to the means of expression and dissemination are the guarantees of cultural diversity.

Some initiatives on the African continent meet the criteria of social justice expressed in Guideline 2. The first is the African Language Material Archive (ALMA). ALMA is an initiative of the West African Research Association (WARA), the Council of American Overseas Research Centers (CAORC), the Columbia University Libraries for African Studies, and the Information

Society Division of the United Nations Educational, Scientific and Cultural Organization (UNESCO). This initiative aims at increasing dissemination of and access to materials published in indigenous African languages through electronic formats (ALMA, 2005).

There is also in the recent years on the African continent a recognition and reaffirmation by African people themselves that African languages must and should play a pivotal role in the development of Africa, specifically in terms of science and technology (Britz, *et al*.: 2006). This has led to the second initiative on the African continent namely the organization of a conference by African authors and scholars. The main focus of the conference was on the future role that African languages can play in Africa. It was held in Asmara, Eritrea and in January 2000 the Asmara Declaration on African Languages and Literatures was issued. It stated amongst other points that:

- Equality of African languages must be recognised as a basis for future empowerment of Africa.
- African research must be done and documented in African languages (Asmara Declaration, 2000).

Other educational and research initiatives on the African continent are worth mentioning as these also meet the criteria of social justice as is expressed in Guideline 2.

The education budgets of some countries on the continent and on the list of priorities set by NEPAD and the G8 countries, clearly reflect an understanding of the importance that education and human development are essential to alleviate information poverty (NEPAD: Three years of progress, 2004). One of the top 10 priorities of NEPAD is *Human Development*, with specific reference to education. The average primary school enrollment percentage on the African continent stands currently at 92% (African Economic Outlook, 2005). Some countries in Africa have made remarkable progress in education. Mozambique, for example, has doubled the number of children in school over the past five years and Kenya recently introduced free primary education. This has brought more that 1,2 million children back to school. In Tanzania 1000 new schools have been built and 18 000 new teachers were recruited (G8 Gleneagles, 2005). Spending on education has also increased. I list a number of African countries budgets on education, expressed as a percentage of the GDP.

- Ivory Coast (4,6%);
- Kenya (6,2%);
- South Africa (5,7%).

These figures compare very favourable with developed countries such as the United Kingdom (4.8%) and the USA (5.5%) (Pocket World Figures, 2006).

NEPAD has also launched a 10 year e-school initiative, the first being in Uganda. It involves the establishment of an Africa - wide satellite network that will eventually connect schools via the Internet. This initiative is part of the Human Capacity Development strategy and the main focus is on teaching school children and teachers the necessary ICT skills needed to participate in the global information society. There will also be so-called "health points" allowing the distribution of essential health care information. This project has received the Global Intelligent Community Visionary 2005 award (Commission for Africa Report, 2005; NEPAD Dialogue, 2005:2).

Sir William Arthur Lewis has been quoted many times for his famous saying namely: "The fundamental cure for poverty in not money but knowledge" (Capurro, 2006). Based on the priorities of NEPAD, it becomes more evident that leaders on the African continent understand this important truth, specifically regarding investment in research and development in Africa. It goes without saying that investment in R & D is as crucial to any economic development as education. Currently Sub-Saharan Africa contributes only 1% to the scientific publications of the world. NEPAD organised a meeting of African ministers of science in 2004. At this meeting it was agreed that Africa should increase its spending on R&D to at least 1% of GDP in the next decade. The current spending is less that 0.1% (Science and Development Network, 2003). Specific R&D plans by NEPAD includes the immediate elimination of poverty, improvement of health, access to safe water and environmental protection. Under the leadership of NEPAD the number of Academic of Sciences in Sub-Saharan Africa have increased to 10 (Schneegans & Amelan, 2006).

There are some brain-gaining initiatives in Africa that meet the criteria of social justice. It is clear that Africa is aware of the brain drain which can end up in a "brain-dead continent" and a permanent state of information poverty on the continent. I list a few of these brain gain initiatives in Africa:

- Intellectual diaspora networks. More that 40 countries in Africa are part of these networks (Meyer, Kaplan & Charum: 2001). The main aim is to maximize the use of the skills and knowledge of expatriates in such a way that they can contribute to the country's development. It is based on the idea that a pool of knowledge must be potentially available without the expatriates having to return to their home countries permanently (Brown, Kaplan & Meyer, 2001).
- Transfer of Knowledge through Expatriate Networks (TOTKEN). This program was initiated by the United Nations Development Program (UNDP). The main aim is to promote the greater use of well skilled expatriates to train Africans at home. The focus is on short term service in economic and social development. According to the UNDP "…proficiency in the local language, strong motivation to serve the home country and demonstrated success in their profession, all contribute to produce significant returns" (TOTKEN Program, 2006).
- South African Network of Skills Abroad (SANSA). In South Africa, a similar programme, known as the South African Network of Skills Abroad, has also been initiated. The basic idea is also to encourage expatriate South Africans to make their body of knowledge and skills available to continue contributing to South Africa's development without having to return permanently to South Africa (S.A. National Research Foundation, 2002). According to the South African National Research Foundation contributions by expatriates can include the following activities:

    - Receiving South African graduate students in laboratories or training programs;
    - Participating in training or research with South African counterparts;
    - Transferring technology to South African institutions;
    - Transmitting information and results of research which are not locally available;
    - Disseminating cultural and artistic creation;
    - Facilitating business contacts;
    - Facilitating discussion forum(s);
    - Initiating research and commercial projects (SANSA, 2006).

- Higher Education. African universities, in association with the Association of African Universities and the Association of Commonwealth Universities play a leading role in initiating projects to enhance higher education in Africa. A ten-year partnership programme has been launched and it is called "Renewing the African University". The cost of this ambitious project is estimated at $500 million per annum. The G8 Commission on Africa Report strongly recommends that the international community support this initiative (Renewing the African University, 2005, Commission for Africa Report, 2005:138).

Guideline 3: The creation of a minimum information standard for society that will ensure a gateway to access essential information

In order to ensure the right of access to essential information, a minimum information standard in a society must be set that serves as a gateway to essential information for each individual in the society. It implies the creation of an accessible – with the understanding that it must also be affordable – and context-friendly information infrastructure. This guideline is based on contributive and distributive justice but also reflects Sen's capability approach and justice as enablement, according to which society has a moral obligation to provide resources and develop policies to enable functions and human well-being. This will include the provision of schools, libraries, information literacy programmes and access to the Internet as well as fair intellectual property regimes that protect and promote information products and services. Such a minimum information standard would naturally differ according to community and country and must be co-determined by the people who need it. It will furthermore empower people to make informed decisions and to participate in the main socio-economic and political activities.

Two apparent examples of the setting of a minimum information standard in society are the Netherlands and South Africa. In the Netherlands it was decided to provide the homeless with a permanent e-mail address (NRC Handelsblad, 2001). During 1994 the South African government also drew up a policy according to which it should be possible for each South African to be within walking distance of a telephone (Van Audenhove, 2003).

It is also clear, based on a literature overview, that there is a broad consensus in Africa that modern ICTs play a major role in boosting economic growth

prospects and that access to ICT should be a standard information requirement for Africa. These initiatives certainly meet the criteria of Guideline 3. In the following paragraphs I will elaborate on some of these efforts on the African continent.

It seems that since the late nineties efforts in Africa to implement and utilise modern ICT have been coordinated much better – at least at policy level. I list a few of these initiatives:

- The establishment of the African Information Society Initiative (AISI). AISI was established in 1996 under the leadership of the Economic Commission for Africa (ECA). The main aim was to connect Africa to the Internet and thereby build Africa's own information highway. A further aim was to investigate the use of ICT for socio-economic and political development in Africa. A direct outcome of the AISI was the encouragement of African countries to develop their own National Information and Communication Infrastructures (NICI) to ensure that sound ICT policies are in place. Up to 2004 more that 30 countries in Africa initiated such NICI (Barka, 2004).
- NEPAD ICT survey and ICT master plan. One of the main priorities of NEPAD (2004) is "…the building and improving infrastructure including ICT". As a direct outcome of this priority NEPAD launched a survey on the current status of ICT use and policies in Africa. An alarming, but not surprising finding of the study was that enabling laws to drive e-strategies in Africa are nearly non-existent. Mauritius was mentioned in the report as an exception. According to the findings of the survey the country has a good e-strategy in place to become a "cyber island". The study also concluded that in those countries where projects such as e-learning, e-health and e-commerce are started it is mostly done without a policy framework. As a direct outcome of these findings NEPAD adopted a recommendation of a broad and comprehensive continental ICT survey. Such a survey will help to identify current technical and regulatory obstacles that can jeopardise the development of a coherent ICT plan and infrastructure in Africa. An envisioned outcome of this initiative will be the development of a comprehensive database on ICT in Africa that will form the backbone of a ICT master plan for Africa (Baradu, 2005).
- The establishment of a policy and regulatory framework. As a commitment to NEPAD's broadband infrastructure network project,

> Communication Ministers, representing various African countries, will sign a policy and regulatory framework protocol for a number of ICT infrastructure development projects, including the Eastern Africa Sub-marine System (EASSy) cable. This cable system will integrate intercontinental communication by connecting ICT infrastructure initiatives across Africa. This will enhance Africa's broadband connectivity largely (Fin24.com, 2006).

The second positive trend reflecting Guideline 3, is the exponential growth of ICT, both in terms of implementation and applications, on the African continent. This exponential growth is mainly due to huge financial support from amongst other the World Bank, the G8 countries as well as the United Nations. Up to 1995 only six countries in Africa were connected to the Internet. In the year 2002 nearly all the countries on the continent were connected in some or another way to the Internet (Ya'u, 2002:8). Access to and the use of modern ICT on the continent have also become a little bit more affordable. Not only is there an exponential growth of ICT on the continent. Africa has also leapfrogged into new ICT's in particular cell phone technology. Africa was the first continent where the use of cell phones outnumbered the use of landlines (Sullivan, 2006; Butler, 2005). The application of cell phone technology, in particular the use of text messaging, has radically changed the way people work, live and communicate in Africa. It has made live easier, safer and to certain extend, more prosperous (Sullivan, 2006). Cell phone technologies set a new information standard, and made information policy decisions regarding landline telephone accessibility absolute. A recent study found that 97% of people in Tanzania indicated that they could access a mobile phone while only 28% could access a landline (Butler, 2005). Of more importance than the ability to leapfrog into new technologies is the fact that ICT allows Africa to avoid to a certain extent the first socio-economic effects of radical technological changes. These effects are mostly negative, for example, unemployment and initial slower economic growth. By leap-frogging and avoiding the errors made by the developing nations in respect of the development and applications of new ICT, Africans can directly benefit from the so-called secondary (rebound) effects of innovation, namely job creation and sustainable economic growth (Britz, *et al*., 2006).

Thirdly, Africa has also its best ever representation on the World Economic Forum's Global IT ranking which was published in March 2005. This ranking is based on the Forum's Readiness Index Ranking. Amongst others

it measures countries' ability to take advantage of ICT. The ranking covers technical infrastructure, government policies on information technology, the quality of education, and the affordability of telephone and internet services. Twenty-one African countries made it to the top 100 list. Tunisia (31), ranked top of the African list, followed by South Africa (34), Botswana (50) and Morocco (54). Zimbabwe and Mozambique are respectively ranked 94 and 96 (Networked Readiness Index Rankings, 2004).

It is therefore clear that the AU and many individual African countries have embarked on a route to have access to modern ICT as a minimum information standard for the people of the continent.

Guideline 4: The creation of a minimum physical infrastructure that will allow "information deliverability" in the dematerialised economy

One of my points of departures in this thesis is the new paradigm shift towards the economics of information, which has introduced advanced capitalism and the process of globalisation (see Chapter 4). I have also argued that through globalisation a network of economic and social networks is created. The gap between the rich and the poor countries is no longer only limited to a "physical object gap", but has become also an "immaterial asset gap", where the key immaterial assets are information or knowledge (Clark, 2003; Britz *et al*., 2006). The immaterial asset gap has some important implications for the right of access to and accessibility of information. As I have argued in Chapter 5, this right is no longer concerned only with freedom of opinion and expression or to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers – a right understood primarily as an intellectual right. In the era of this new economic paradigm and of globalisation the right of access to information has become one of the most important social rights, since it is a precondition for participation in the various socio-economic and political activities of a modern society.

As I have pointed out earlier the problem is that the new information economy is underpinned by a material, efficient and in many respects a top-heavy infrastructure that includes harbours, airports, railways, roads, warehouses and physical addresses of people. In previous chapters I argued that access to "unbundled" products and services, in most cases offered via modern ICT (education and banking are two exclusions), does not allow

access to the physical object itself. Medicine, cars, food and household items such as refrigerators cannot be shipped as e-mail attachments. Delivery of these products requires a highly sophisticated and efficient physical infrastructure. A dematerialised information-based economy without a physical infrastructure to allow the delivery of the physical products is therefore of little use and can even create unmet expectations. A rural healthcare worker may find wonderful information on the Internet about the prevention of a killer disease like malaria, but this will be of little use if there are inaccessible roads and no vehicles to deliver the necessary medication in time to the clinic, or if there is no working refrigerator to keep the medicine at a regulated temperature (Lor & Britz, 2006). The digital divide has indeed more than ever become a physical (infrastructure) divide and therefore necessitates this important guideline which is based on participative justice, the capability approach and contributive, distributive justice as well as justice as enablement.

From an economic and political perspective one can actually argue that a well-developed information infrastructure and a corresponding physical infrastructure form the backbone of all socio-economic and political activities of the information and knowledge society. From a moral perspective I also argue that a well-developed and well-maintained information infrastructure and corresponding physical infrastructure form the "moral backbone" to our human freedom (Lor & Britz, 2006). This freedom is mainly expressed in our respective individual and social rights, including the right of access to information and the right to participate in socio-economic and political activities (see Chapter 5). Such a well-developed and maintained information infrastructures, as well as physical infrastructures, provide the vehicle allowing us to make informed choices and to participate in the various socio-economic and politic activities of society. We will not have the ability to choose if we do not have the ability to access these vehicles that facilitate our right to participation in the various socio-economic and political activities.

Based on this guideline I therefore argue that both governments and the private sector have a moral obligation to develop and maintain affordable infrastructures facilitating access to the physical products and serves that are made accessible through modern ICT. A well developed information infrastructure, supported by an efficient physical infrastructure, can assist people to create a national economic identity, will allow access to basic services (e.g. health care and education), and will contribute to allow nations

to sell their products and services globally (African Economic Outlook, 2005:47).

The African continent again serves as a good example of the application of guideline 4. Until very recently Africa had an extremely poor track record regarding physical infrastructure development and maintenance. Based on reports published by the World Bank (2005), NEPAD (2004) the World Economic Forum (2003) and the OECD (African Economic Outlook, 2005) I list a few infrastructural realities in Africa that impeded the development of Africa to become a competitive economic role player in the era of globalization. These are:

- Of a total of 1.5 million km of roads in Sub-Saharan Africa, only 19% is paved in comparison with 27% of Latin America and 43% of Asia;
- Most people in Africa are further away from a road than anywhere else in the world. This is specifically true of Ethiopia. Inaccessibility to infrastructure makes economic interactivity and development nearly impossible;
- One third of the roads build in Sub-Saharan Africa over the last 20 years are not maintained;
- Transportation is unreliable and expensive. Transport cost are one of the main factors that explains variable local economic activities;
- In Sub-Saharan Africa only airports in South Africa and Ghana met the FAA standard of Category 1 for international flights;
- Landlocked countries in Africa face higher insurance and transportation costs than anywhere else in the world;
- In 1999 only 1 out of 5 Africans had access to electricity;
- It is estimated that African will need to invest at least 6% of its GDP per year to not only maintain, but also further develop the continent's infrastructure.
- There is still operational inefficiencies and Africa, and in the words of the OECD report (African Economic Outlook, 2005:47) "…remains a continent of stranded mobility".

Since the turn of this century much has changed on the continent that reflects this guideline. All the major stakeholders, both in Africa and international, are realising the importance of a strong and well maintained physical infrastructure alongside information infrastructure development in Africa. Most of these role-players are not only economically, but also morally

committed to bring about change (World Bank 2005). There is a clear understanding that a well developed and cost effective physical infrastructure will create import as well as export opportunities for Africa. This will in turn foster private sector involvement and hopefully attract international investment. It was therefore not surprising that infrastructure development featured as a major agenda item at the September 2005 "UN Millennium plus 5 Summit". It was also a central theme of the Commission for Africa Report (2005) (African Economic Outlook, 2005:47).

As an expression of this moral commitment to Africa, a number of international organizations have provided and pledged monetary support for the development of infrastructure in Africa. The most notable contributions and pledges are:

- The World Bank, who provided US$409 million in 2000 to the eight countries of the West Africa Economic and Monetary Union. This financial aid was specifically provided to improve 1 300 km of cross-country roads in the region. This allowed, according to the World Bank, for the creation of a regional market and accordingly more competitive advantages for these countries (World Bank, 2000).
- During 2005 the World Bank has also committed itself to lend another $1,8 billion a year for infrastructure development in Africa (World Bank, 2005).
- During the G8 meeting, held in 2005, Britain urged the member states of the G8 countries to embrace what is called a new Marshall Plan for Africa. This plan includes a financial contribution of $25 billion over the next three to five years and plans to write of the debt of most of the poorest countries on the continent. This initiative is part of the G8 Africa Action Plan which was already agreed upon by the G8 countries in 2002. Part of the African Action Plan included commitments on promoting economic growth (including infrastructure development), expanding knowledge and improving health on the continent (Commission for Africa Report, 2005).

The Southern African Development Community (SADC) countries are also involved in major and imaginative road-construction projects. This includes amongst other the Maputo Corridor, which will eventually link Maputo (Mozambique) to Walvis Bay (Namibia) via the Trans Kalahari Highway (Botswana). The development and implementation of the Mozambique - South Africa toll road is also a success story – economically as well as

morally. The project started in 1996 and was completed at a cost of R3 billion in 2000. It was a joint venture between the public (Governments of South Africa and Mozambique) as well as private sectors (4 major Banks in South Africa plus the Development Bank of Southern Africa). Since its completion in 2000 transport use increased on average 6% per year, tourism flourished (in particular Mozambique) and more private investments were made in Mozambique. Of particular interest is the fact that the financial risk was shared between the different role-players and a lower financial burden was put on the poorer Mozambique. Mozambique users are also charged less for use of the road (African Economic Outlook, 2005: 59).

The Economic Commission for Africa (ECA) is furthermore involved with the implementation of the Almaty Program of Action in Africa. The program, initiated in 2003, allocated $4.6 million to fund projects aiming to develop transit support for landlocked countries in Africa. The target date for completion is set for 2007 (African Economic Outlook, 2005:50).

Another initiative on the African continent to review the links and coherence between infrastructure (in particular transport) and poverty reductions strategies, is the Sub-Saharan African Transport Policy Program (SSTP). The SSTP is multi donor funded and support the formulation of action plans to ensure poverty reduction by means of transport improvement. The SSTP supports currently 26 countries in Africa (African Economic Outlook, 2005:69).

Siemens Southern Africa is also highly involved in implementation and upgrading of power-station infrastructure in Southern Africa (ESI Africa, 2003).

There is a clear understanding, as well as a moral and economic commitment in Africa, and by the major international role players, to develop the continent's physical infrastructure to the extent that an equal and fair participation in the global dematerialised economy will become possible.

Guideline 5: The creation of equal opportunities that will enable individuals to exercise the right of access to information

Guideline 5 is based on justice as participation, justice as enablement and distributive and contributive justice. According to this guideline equal opportunities must be created and in place with regard to the exercise of the

right of access to essential information. In those circumstances where this right of equal opportunity for access to essential information is withheld or where certain levels of inequality between people, for example, social status, political affiliation or economic class distinctions, is used as a principle to determine which category of essential information an individual may have access to, it must be viewed as a form of social injustice (Britz, 2004:204).

I argued in Chapter 4 that according to this guideline, and as an expression of participatory justice, there can in certain circumstances be justification for the application of inequality to ensure the creation of equal opportunities in society. The subsidisation of certain essential products and services serves as a good example. Subsidisation of essential products and services, including information, will help to created equal opportunities for participation of all people to enable self-actualisation. Participatory justice requires therefore from society to support (amongst other by means of subsidisation) those who do not have an equal opportunity to participate in essential socio-economic as well as political activities. The Catholic Pastoral letter (1997:44) refers to this as institutional pluralism whilst Bedford-Strohm (1993) uses the concept *Koöperationsfähigkeit*. This form of subsidisation would satisfy the requirements of contributive and distributive justice.

In applying this guideline to information poverty one can argue that it is fair to distribute essential information, such as health and education-related information, to poor and underprivileged communities at very affordable rates, and/or to subsidise the repackaging of the content thereof to ensure that the users can have access to the content. The subsidised distribution of computers to these communities and the providing of affordable access to the Internet as well as the implementation of information literacy programmes also serve as applicable examples. However, it is important to point out that these processes may not be based on a paternalistic perspective, according to which the suppliers and creators of information make information available without really determining the needs of the people or ensuring the possibility of self-development.

In acknowledgment of the value of the creation of equal opportunities to access educational material (see Chapter 4) I discuss three examples related to accessibility of scholarly publications. These three examples meet the criteria of guideline 5. These are:

- the Health InterNetwork Access to Research Initiative (HINARI);

- the Global Online Research in Agriculture (AGORA) and
- the Programme for the Enhancement of Research Information (PERI).

HINARI is an initiative of the World Health Organisation (WHO) that focuses on the distribution of health information to developing countries. Viewing health information as essential information from which people cannot be excluded, it provides free or highly subsidised access to major journals in biomedicine and related fields to non-profit organisations such as universities, medical libraries, hospitals, and government offices in developing countries that meet eligibility criteria based on per capita gross domestic product (GDP) (HINARI, 2005).

For the sake if the argument I quote a large section of the original statement of intent by the publishers. It was signed in 2001 and reads as follows: "The partners in the Initiative acknowledge that access to primary biomedical journals is a critical issue in developing countries – one of many obstacles to improving health – and are willing to work with committed governments, international organisations and others to find ways to open access to this information. Intended to benefit research, academic and other organisations in developing countries working for the public good, such an initiative would:

- Provide access to a wide range of key biomedical journals at prices which reflect the state of national economies in the developing world.
- In some cases, access may be provided at no charge.
- The Initiative applies only to bona fide academic and research institutions.
- The Initiative includes most of the countries classified by the World Bank as low or lower-middle income.
- Each publisher will offer access in the broad terms of the principles on which this Initiative is based, and will be free to provide specific arrangements according to its own business model.
- Access will be only to the Publishers' biomedical and health information.
- Access authentication will be provided by WHO's Health InterNetwork project.
- Through this Initiative, the publishers are indicating support for the World Intellectual Property Organisation, the International Publishers Association and other organisations in promoting respect for the Berne Convention in the use of important scientific information.

- All partners recognise the key role national governments will take in supporting this Initiative and developing it.
- The Initiative will commence as soon as practical issues are resolved, and it is hoped that access will be provided from early 2002.
- The Partners are committed to the success of the Initiative, and while monitoring its progress, expect it to continue for at least three years.
- The publishers hope to work with the WHO in encouraging research publishing programmes in developing nations.
- New partners will be sought to increase the amount of content within the Initiative and to provide funds and technology to establish a firm infrastructure for the future." (Publishers' statement of intend, 2001)

Six major international journal publishers joint HINARI in 2001. These were Blackwell, Elsevier Science, John Wiley, Springer Verlag, Wolters Kluwer International Health Science and Harcourt Worldwide STM Group. More publishers joint over time and the current number stands at 70. The total number of titles available currently exceeds 2000 and the retrieval of some full text articles is also available. Currently more that 1100 institutions in more that 100 countries are benefiting from the programme. The criteria, reflecting the principles of social justice, are designed to separate the poor developing countries from the rich countries. Hence African countries such as Ethiopia and Sudan are eligible for free access but South Africa, as a richer nation based on GDP, is not (Aronson, 2003).

AGORA is similar to HINARI, but focuses on agriculture and views agricultural information as essential to human development and instrumental to ensuring a livelihood. It was established in 2003 and it is administered by the United Nations Food and Agricultural Organization. The aim is to provide institutions in the developing world with free or low-cost access to scientific journals in the hope that this will help reduce famine and improve food and nutrition quality in these countries. AGORA currently provides access of 908 journals to 69 countries. Publishing partners include Blackwell, Elsevier Science, John Wiley, Springer Verlag and Oxford University Press (AGORA, 2005).

PERI is a worldwide research initiative coordinated by the International Network for the Availability of Scientific Publications (INASP). Its main objective is to "support capacity building in the research sector in developing and transitional countries by strengthening the production, access and dissemination of information and knowledge" (INASP, 2005). Like

HINARI and AGORA, PERI helps developing countries to obtain affordable or even free access to publications published by commercial publishers. Part of the process entails assistance to developing countries to negotiate affordable and sustainable licenses from publishers to enable access to research journals. There are more than 11 000 full text online journals available via PERI. The economic status of developing countries are determined by using the World Bank's Gross Income per capita Index as well as the Human Development Index of the UN. PERI also puts more emphasis on the development of programmes to assist journals from developing countries to become more professional and improve their scientific and editorial quality.

Guideline 6: The adoption of the right to communicate to enable meaningful participation and global dialogue in the information and knowledge society

The creation, processing, fair distribution and use of information and knowledge are not the only moral concerns. Based on justice as recognition it can be stated that communities must also have the right to communicate, to share their views and to learn from others. Contributive as well as distribute justice also demands the establishment of a global communication platform to address social justice which can include issues such as information poverty and environmental issues.

Hamelink (2003:3) correctly points out that we should move beyond "information and knowledge societies" towards "communication societies". The right to communicate is essential in the globalised society in which we are living because "globalisation without dialogue becomes homogenisation and hegemony. Localisation without dialogue becomes fragmentation and isolation" (Hamelink, 2003:3). Modern information technologies, in particular the Internet, have for the first time made such a global interactive dialogue possible and allowed more and effective inter- and cross- culture communication opportunities. The new communication media also gave new meaning to the right to communicate by allowing groups to organize, mobiles and publicise much more effectively than in the past. The new ICT platform opened a global discourse on matters such as global poverty, global warming and respect for human life. In this regards Calabrese (2005) argues that this new global movement for communication rights is an expression of the global justice movement, representing mostly civic society.

The right to communicate featured prominently at the first WSIS meeting (2003) and scholars such as Kuhler (2003) and Hamelink (2003) strongly argued, in line with the WSIS agenda, that the right to communicate be adopted as an additional universal right that must form part of the Universal Declaration of Human Rights (UDHR). In the Draft Declaration of Principles of the WSIS (Geneva 2003) it is also stated that the "right to communicate and the right for citizens to access information are fundamental to the Information Society" (WSIS, 2003). The idea is that such a right must guarantee participation in the global information-based society.

The right to communicate is also closely related to the debate about who owns and controls the media markets and the Internet (Britz, 2004). Based on this guideline it is argued that governments have an obligation to create a media environment that is independent and of a diverse nature, guaranteeing the right of the public to receive information from a variety of sources and, in the word of Habermas (1989) to maintain an open public sphere.

According to Calabrese (2005) the arena for the debate on communication rights should move away from "…a preoccupation with rights [including intellectual property rights – JJB] and entitlements, and more towards norms of social responsibility" (2005:303). I agree. Communication rights should not only focus on issues relating to the commodification of media and control of governments and corporations in terms of the development and application of stricter intellectual property right regimes or censorship. The right to communicate is also about the fundamental right to communication social justice issues.

There are a number of examples that meet the criteria set by guideline 6. I briefly discuss two examples namely the recent initiative, in particularly the USA, to introduce free WIFI services to towns and cities and the development and application of modern ICT in Africa.

It has become technically possible to provide cities and towns wireless grids that support Internet connection on a notebook and cell phone, allowing more people on a regular basis to communicate globally. This technical possibility has become hot areas of exploration by many cities in the USA, because it can allow people to access the Internet for free, or at a very affordable rate, at any place and time – as long as their computers or cell phones have wireless connections. A number of cities in the USA like Herman Beach and Riverside (California) already provide free WIFI

connections to their local populations and even make some revenue by means of advertising. Google announced in August 2006 that they will fully fund a WIFI system for Mountain View – the hometown of Google. The Chicago public library system, with its 79 branches, also provides free hot spots to it users and thereby gives a new meaning to the "public sphere" where people can have the opportunity to share and exchange ideas in a virtual public sphere.

Combining this free/affordable WIFI Internet broadband connectivity with

- free downloadable communication software such as Instant Messenger and Skype (Voice - over - internet - protocol [VOIP]);
- 24/7 access to the Internet;
- free email accounts, for example G-Mail, Yahoo and Hotmail as well as
- relatively cheap computers and cell phones

create indeed a technological possible, economic feasible as well as ethical acceptable platform for global communication that will allow people to exercise their right to communication and to participate in a meaningful way in a global dialogue.

This ICT based communication platform is however only limited to the rich developed nations of the world where there is a well developed, and free market driven ICT backbone that allows affordable or even free broadband access to the Internet on a 24/7 basis.

The ICT based communication platform in Africa, and other developing regions in the world, tell a different story. This is mainly due to a lack of affordable and regular access to the Internet. Broadband access is either not available, and if available, a luxury that is unaffordable for most people. For the sake of the argument I quote part of a report released by ResearchICTAfrica.net on Internet cost in Africa:

> "In most countries in Europe and in the U.S.A., the prices of high speed internet connections have declined dramatically in the last few years. Where ASDL technology is available, the cost per month for a 512 kbps. line is 25 to 40 USD per month. Dial-up lines cost about the same, if you include telephone charges for 15-25 hours

> per month. In Africa, the cost of a dial-up connection is similar or often more expensive than in Europe, but only gives half the performance. A shared fixed line – often called a VPN (Virtual Private Network) – will often cost 300 to 500 USD, for a very mediocre performance. If you also consider the vast difference in incomes between most African countries and Europe, the difference becomes even greater. Measured as the number of hours you must work to pay for an Internet connection, a user in Africa is disadvantaged by a factor of 100 or more" (ResearchICTAfrica.net, 2005).

Most people in Africa rely therefore on mobile phone technology to be able to communicate. However, the use of mobile phones is Africa is still very expensive and that explains why more that 90% of all mobile phone users in Sub-Saharan Africa are pre-paid subscribers – using their phones mainly to be reached (receive calls) and not to reach others (make calls) (Towards an African e-Index, 2005:23).

There are however some exiting developments in South Africa that partly meet the criteria set in this guideline. A second fixed line telecom operator has been introduced in August 2006 which will hopefully bring the necessary competition to lower fixed line communication costs in South Africa. VOIP was also deregulated in 2005, opening up the possibility for cheaper calls and cheaper broadband access to the Internet. Vodacom and MTN, two mobile operators in South Africa, have also introduced a "third generation" mobile technology that can deliver broadband access to laptops. Some municipalities, for example Knysna, started to roll out wireless services in place of the very expensive fixed line services provided by Telkom, which is one of the two official national telecom operators. It is predicted by BMI-T, a market-research firm, that there will be more that 400 000 broadband connections in South Africa by the end of 2006 (Economist, September, 2006:56). These new developments will certainly allow more South Africans to communicate and be part of a global dialogue. The concern however remains: will it be affordable? According to Storm, a telecom firm operating in South Africa, some telecommunication costs in South Africa is still on average 30 times more expensive that in the liberalised markets – in particular the USA and EU (Economist, September 2006:56).

Telecommunication cost is therefore one of the main obstacles for Africans to establish and be part of the global communication platform that will allow them to fully exercise their right to communicate. I argue therefore that the private as well as public sectors in Africa and around the world need to introduce imaginative initiatives to reduce the cost of telecommunications, both in terms of access to the Internet as well as the cost associated with the use of mobile phones. Those efforts that succeed to substantially lower the cost of ICT - related communication in Africa will meet the criteria set in this guideline.

Guideline 7: The allowing of the inequality in the distribution of information if it contributes to the improvement of information-poor communities' lives

As I have already argued in Chapters 4 and 5 (see 4.4.9.2 & 5.8.5) that social justice does not imply absolute social equality. People differ, and so do circumstances as well as contexts. Some people have more money to buy books and access the Internet and other are illiterate, thereby being denied access to most text based information. Another economic factor contributing to information inequalities relates to the fact that creators of information products, such as composers and authors, are compensated for their work. Information stakeholders who are involved in the generation, processing, value-addition, and distribution of information products and services as tradable commodities also contributes to this economic based information inequalities in society. Information has truly become a tradable commodity in the dematerialised global economy, thereby creating a wider gap between those who own and control information and those who need access thereto. Rawls recognises these differences between people and contexts and states in his second principle of justice that inequality between people is permissible if it is not to the disadvantage of the poor, but contributes to improving their situation (1971). I elaborated in detail on this second principle in Chapter 4.

According to this guideline, which is based on my third principle of justice (see Chapter 5 under 5.6), as well as on distributive justice, contributive justice and justice of reciprocity, certain information inequalities can be justified. I will explain this justification in the following paragraphs.

Justice as reciprocity, as well as distribute justice, allows inequality with regard to access to and use of information based on merit and acquired rights (Buiter-Hamel, 1998). The distribution according to merit, as a basis for

justification for information inequality, is based on justice as reciprocity according to which a person who is involved in the life cycle of an information product can be compensated fairly for, for example, the creation of or adding value to and distribution of information products. This reflects the basic and first principle of justice according to which individuals must get what is due them. Contributive justice furthermore requires that the state and other influential information role players in the marketplace, must put in place an effective mechanism, for example, fair copyright legislation, to protect this economic interest of the creators, value adders and distributors of information products and services. This will ensure that a fair legal framework is created to regulate the inequalities in the information market place.

There are however certain important preconditions that must regulate this form of information inequality. Rawls articulates this very well in his second principle. He describes it as follows (1971:65): "All social values – liberty and opportunity, income and wealth, and the bases for self-respect – are to be distributed equally unless an unequal distribution of any, or all, of these values is to everyone's advantage".

Intellectual property legislation in South Africa, if applied correctly, meets the criteria of this guideline. It is based on two basic principles reflecting contributive justice, distributive justice as well as justice as reciprocity. The first principle reflected in the South African intellectual property legislation is the fact that it accommodates the right of people to access information. The second principle corresponds to the belief that authors, composers and other knowledge creators and information distributors deserve to enjoy the benefits of their work (Ackerman & Britz, 2006). This reflects the merit principle which, as I have argued in the previous paragraphs, allows unequal income and distribution of information products and services. South African intellectual property legislation therefore acknowledges the fact that knowledge creators' and information distributors' social and economic advantages should be protected fairly.

I pointed out that the application of intellectual property rights must be fair and just to both users, as well as creators and distributors of the information products and services. The following example will illustrate my point. The inventors of a medicine to treat HIV/AIDS have a responsibility to make this knowledge available, within the framework of fair trade, to society so that all can benefit from it. The decision in September 2003 by the World Trade

Organization (WTO) to allow poor nations to import and use generic medicines, but by the same token to protect the patent rights of pharmaceutical companies in the rich countries, serves as another good example of social justice based on this guideline (WTO, 2003).

Distributive and contributive justice also requires that part of the economic gains garnered on merit be distributed to the advantage of society. This can for example be done if a part of the profit is re-invested in the community (contributive justice). For example, the awarding of a mobile phone license to a particular company in Africa can be made subject to a contractual obligation according to which a percentage of the profit must be invested in the construction of rural information centers and the teaching of information literacy programmes to information-poor communities.

Guideline 8: Ensure the fair protection and promotion of indigenous information property and the transformation of society to enable reconciliation

This ethical guideline is necessary because of the numerous examples of injustice against the information poor. In the previous chapter I referred to the treatment of indigenous people regarding the exploitation and misuse of their indigenous knowledge as well the inability of modern intellectual property regimes to recognise, protect and promote indigenous knowledge.

Transformative justice requires a new look at not only possible harm that has been inflicted on the information poor but also at the means to restructure and transform society in such a manner that these injustices do not happen again.

In recent years there has been an increasing awareness of the exploitation of indigenous knowledge by means of wrong patenting and other forms of IPR applications. This has led to the recognition of the need for more effective protection of indigenous knowledge rights in this area. A number of new developments at the international and national levels meet the criteria of justice as transformation.

Countries such as South Africa, Australia and India are revising their current IPR regimes to accommodate the protection and promotion of indigenous knowledge (Britz & Lor, 2003). India has also successfully contested the granting of non-traditional knowledge systems patents, which has led to the

cancellation of the patents. Most of these were patented in the USA. However, it was an expensive and lengthy process. As a response to such wrongful patenting, India created a traditional knowledge digital library, making this knowledge public domain. This led to WIPO's special union for the International Patent Classification (IPC) to investigate how wrongful patenting can be prevented and to find ways to link or integrate traditional knowledge into the IPC (TKDL, 2001).

The Convention on Biological Diversity, which was agreed upon and signed by more than 150 nations at the Earth Summit (Rio de Janeiro, 1992), accepted and implemented a very important article on indigenous knowledge. Article 8 (j) states that these nations undertake to: "Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilisation of such knowledge, innovations and practices." Since the Earth Summit 182 countries have ratified the agreement (Convention on Biological Diversity, Convention text, 2002).

WIPO is also showing an increased interest in the fair protection of indigenous knowledge. Apart from fact-finding missions and organising round tables on indigenous traditional knowledge, an Intergovernmental Committee on Intellectual Property and Generic Resources, Traditional Knowledge and Folklore was established in 2000. The aim of this committee is specifically to investigate the international protection of indigenous knowledge (WIPO, 2003). Support for the international protection of indigenous knowledge has also come from the United Nations Conference on Trade and Development (UNCTAD) which held an Expert Meeting in October/November 2000 to discuss ways to protect indigenous knowledge and to prevent further improper appropriation of indigenous knowledge. According to UNCTAD the most promising option would be "…to bridge traditional collective rights with the more modern and western concept of intellectual property rights" (Capdevila, 2000).

Moral guideline	Principle of justice	Category of justice	Information-based right	Examples
Each person in the community has an equal right of access to essential information required to develop and exercise other basic rights	Principle 1	Recognition Reciprocal	1, 2, 5, 7 & 8	• South African Constitution • Egypt: National Information Policy • eEurope Initiative
Access to essential information implies the accessibility and benefit thereof	Principle 1 Principle 2 Principle 3	Distributive Contributive Enablement Reciprocity Participative	1, 2, 6, & 7	• African Journals Online Project • Open Information Movements • UNESCO – Cultural Diversity • Africa: Language initiatives • Africa: Education initiatives • Africa: Brain-gaining initiatives
The creation of a minimum information standard for society	Principle 1 Principle 2	Contributive Distributive Enablement Participative	1,2,3,4	• Netherlands: e-mail address for all • South Africa: access to telephone • Africa: ICT connectivity
The creation of a minimum physical infrastructure that will allow "information deliverability"	Principle 1 Principle 2	Contributive Distributive Enablement Participative	2, 7	• Mozambique/South Africa toll road • SSATP program • Almaty Program of Action in Africa
The creation of equal opportunities to exercise the right of access to information	Principle 1 Principle 2	Contributive Distributive Enablement Participative	1, 2, 7	• Health InterNetwork Access to Research Initiative • Global Online Research in Agriculture • Programme for the Enhancement of Research Information
The adoption of the right to communicate	Principle 1	Participative Recognition Enablement	1, 2, 3, 4, 5, 6, 7.	• WSIS declaration • WI-FI • Free communication software • Free e-mail accounts • Telecom cost in Africa
Inequality in the distribution of information is allowed if it contributes to the improvement of information-poor communities' lives	Principle 1 Principle 3	Reciprocal Contributive Distributive Enablement Recognition	1, 2, 8.	• World Trade Organisation: generic medicine • SA IP legislation • Mobile phone contract • HIV/Aids information
Ensure the fair punishment of those who inflicted harm on the information poor and the transformation of society to enable reconciliation	Principle 1 Principle 2	Retribution Recognition	1, 5, 6, 8.	Indigenous knowledge • World Intellectual Property Organisation. • South Africa • India

Information rights
1 Freedom of the flow of information
2 Access to information allowing participation
3 Freedom of opinion and freedom of expression
4 Freedom of the Press
5 The right to privacy
6 Right to participate in one's own culture
7 right to be educated
8 Right to own and control information

Table 4: Moral guidelines for information poverty

6.5 Conclusion

In this chapter I have applied social justice and human rights as a moral tool in terms of practical guidelines that can be used to address the moral concerns raised by information poverty. I illustrated the complexity of this application by referring to the economic realities and to the multifaceted notion of information. Eight guidelines reflecting the different categories of justice have been identified and I used examples from mostly developing countries to illustrate the practical application of these guidelines.

CHAPTER 7

CONCLUSION AND TOPICS FOR FURTHER RESEARCH

7.1 Conclusion

Information poverty is one of the main forms of poverty today that affects the lives of billions of people on a daily basis and as such I argued that this form of poverty should be on the world's moral agenda – not merely as a discussion item but as an action item. One cannot shape and build an information and knowledge society without taking into consideration the moral challenges associated with this form of poverty.

What is information poverty and why is it a serious moral issue that needs to be addressed today? This is research question that has guided this thesis. To get an answer to this question I have addressed five key issues. They are as follows:

- I analysed, unpacked and understood the different dimensions and moral implications of poverty through the use of social sciences (Chapter 1).
- I investigated and analysed the notion of information, specifically in terms of its relationship to poverty. This is done from an information science's perspective (Chapters 2 & 3).
- I also analysed, unpacked and understood information poverty, both in terms of its complexity as well as social, political, personal and moral dimensions (Chapter 4).
- I then reflected, from a social justice perspective, on the moral concerns associated with information poverty. This was done through the use of philosophy and social sciences (Chapter 5).
- Lastly I developed, based on social justice and human rights, moral guidelines that can be used to address the different moral concerns associated with information poverty (Chapter 6).

A more detailed description of these five issues I addressed in thesis is as follows:

7.1.1 Poverty

In Chapter 2 I defined poverty as that condition of life where the majority of people lack sufficient resources to supply their basic needs for survival. Poverty furthermore does not only refer to the presence or absence of resources; it is also expressed in the inability to produce these resources. I therefore made the case that poverty is primarily linked to people's inability to provide for their basic needs. In other words, it indicates the socio-economic status of people and communities, together with its impact on just about every aspect of their lives.

Poverty is a complex phenomenon; many forms of poverty can be distinguished and the causes of poverty are multidimensional, for example, economic and political systems, gender and geographical distribution. There are also different ways to measure poverty – both qualitative and quantitative. I came to the conclusion that there is no single or just a few solutions for the problem.

I also argued that poverty is not primarily an individual phenomenon. Different levels of poverty must be distinguished and it should be understood and interpreted within an economic-political and socio-cultural framework. The "blame" for poverty can rarely be placed on individuals alone. Poverty is also no respecter of persons.

In my deliberation on poverty I also pointed out that the impact of poverty on people and the environment is enormous. It affects the quality of life of billions of people. I strongly argued in Chapter 2 that for this reason poverty, and its implications, have a strong moral claim on society.

7.1.2 Information

In Chapter 3 I approached information from a diachronic approach and defined information as a process which includes the following elements:

- it is an action;
- it has content that is transferred/communicated;
- it is communicated by means of a specific medium;
- it has the purpose of giving meaning.

I refer to the product of this informational action as "information".

I deliberate on different approaches towards and understanding and applying of information. I preferred the knowledge approach and based on this approach I developed my own integrated approach to information. I used the philosopher Popper's three worlds to explain the relationship between information, reality and humans (1972).

Within the context of these three worlds I identified three unique characteristics of information which I referred to as the:

- object - connectedness of information;
- carrier - connectedness of information;
- human - connectedness of information.

In the last part of Chapter 3 I asked the important question: What are the implications of all these characteristics of information for a study on information poverty? In answering this question I came to the following conclusions:

- Information is an essential and instrumental resource that we as humans need to satisfy our needs. I argued, for example, that without access to information people (rich and poor) cannot meet and satisfy their basic needs and cannot develop.
- It is possible to have access to objects in reality without the objects themselves having to be perceptible to our senses. This characteristic of information allows us to be more informed, to make better decisions and to have access to resources that we previously did not have. I pointed out that this characteristic of information allows, for example, experts to communicate their knowledge and share their expertise in real time the rest with of the world without having to be physically present.
- Access to information alone can create unmet expectations which can have a significant impact on poor people. I used the following example to illustrate this important aspect. Access to information on how to purify water has little or no meaning if a person or a community does not also have access to the tablets needed to purify the water.
- Access to information does not necessarily guarantee the correctness thereof or the correct application of the accessed information.

- Information is a category word. Based on this feature of information I distinguish between the two following categories of information that have a bearing on information poverty: essential and non-essential information. I explained the difference between these two categories of information as follows: certain essential information is indispensable for poor people and is required daily to provide their basic needs for survival and development. Information about where to obtain food or medical services is an example of essential information. Non-essential information, on the other hand, is information which does not relate directly to providing in poor people's daily basic subsistence needs. It may even be important information in some cases, but is not necessarily essential for survival.
- Access to information does not necessarily imply accessibility thereof. A person might, for example, have access to a computer disc (carrier) containing essential information, but without having access to a computer to open the file, access to the content itself is impossible.

I have furthermore argued that the three characteristics of information (content, carrier, human) can be used to measure information poverty.

7.1.3 Information poverty

In Chapter 4 I argued that information poverty is not a new concept and the experience of being information-poor is as old as human history. The notion of information poverty was first coined in the 1950s and I pointed out that the notion gained popularity in the information era, which was accompanied by the phenomenal growth of modern ICT.

Based on a thorough literature overview I came to the conclusion that, although the notion of information poverty is used widely, there is little agreement on what exactly it means. I identified three major interrelated approaches to information poverty in the literature. These are:

- An information connectivity approach focusing on the connectivity to ICT;
- The content approach where the focus is on the effect of the unavailability of essential information to people; and
- The human approach which I defined as the knowledge or hermeneutical approach where the emphasis is on the ability of people to apply meaning to information and to benefit from it.

I also discussed and elaborated on a few related perspectives to information poverty based on the literature study.

Following from the literature study I proposed my own approach to information poverty. I found the most suitable way was to start with the description of a hypothetical ideal information-rich society. I based this on the main characteristics of information which were described in Chapter 3. This approach offers many advantages:

- It allows the identification of the main causes of information poverty;
- One can get a better understanding of the different degrees of information poverty ;
- The moral concerns associated with information poverty can be identified; and
- It is also possible to use this ideal situation to develop strategies to address information poverty.

Based on this ideal information-rich situation I then defined information poverty and highlighted the information capital of an information poor society which I described as:

- A lack of access to essential information, including access to information which has a bearing on those resources needed to satisfy needs;
- A lack of a well-developed, familiar and well-maintained information infrastructure;
- A lack of financial capital to pay for information;
- A lack of the technical and other abilities to access information; and
- A lack of an intellectual capacity to filter, evaluate and benefit from information.

Based on this information capital I made a strong case that information poverty has an overall impact on the development of people in nearly all spheres of life.

In my further deliberations on information poverty I illustrated that different degrees and levels of information poverty can be distinguished and that it is possible to measure these qualitatively as well as quantitatively. I discussed

the main causes of information poverty in more detail because I used these arguments in Chapter 5 to illustrate that information poverty is a serious moral issue.

7.1.4 Information poverty as a serious moral issue

In Chapter 5 I analysed information poverty from a social justice and human rights perspective. I illustrated, based on three core arguments, namely access to information, asymmetric power relationships and the usability of information (relevance and accuracy), that information poverty is indeed a serious matter of social justice.

Following from this I analysed social justice in terms of its scope, application and functions. Based on the value statement that the alleviation of information poverty serves a common good purpose, I argued that there are two moral principles that meet the requirement of universal validity and that can be used to guide moral decision-making regarding information poverty. These are justice and human rights. Based on these premises I argued that justice is a normative instrument that can be use to evaluate societies, and that it, as a social virtue, sets out important principles for the fair and equitable treatment of both the information rich and the information poor. I also illustrated the important relationships between justice and human - well being as well as human freedom. In these deliberations I pointed out the specific bearing on information poverty.

I identified three core principles of justice that I used in my deliberation on information poverty. These are:

- All people (information-rich and information-poor) must be treated equitably and be judged according to the same norms;
- A person ought to get that which is due to her/him. According to this principle of justice everyone should get what they deserve – be it good or bad;
- The recognition that inequality between people, for example, income, must be recognised and respected.

Based on the identified three principles of justice, I discussed the fact that justice must ensure that people (the information rich as well as the information poor) must get what is due to them. I argued that what is “due to them” can differ from one context to another and also from one individual to

another on condition that it is based on fair and appropriate values shared by all.

The fact that justice seeks to recognise the human dignity and human well-being of all – irrespective of who they are – was shown to be fundamental to the understanding of justice. I further illustrated that our human dignity and search for well-being is closely associated with our understanding of freedom.

In my deliberations on social justice I identified seven different categories of justice that can be distinguished to deal appropriately with the different and complex moral issues pertaining to information poverty. These are:

- Justice as recognition, which I defined as the finding of ways to appropriately recognise and respect the humanity and autonomy of fellow beings. I illustrated that as a category of justice it insists on a pursuit of equitable treatment of all people, the information poor as well as the information rich, because they are of equal moral dignity.
- Justice as reciprocity, which deals with the "nature and scope and content of fair terms of cooperation in the personal, social and institutional levels" (Lötter, 2000, 224). I emphasized the fact that as a category of justice it entails that the same rules and norms will apply in all similar situations. I argued that this category of justice will eliminate any arbitrariness in exchange relations affecting the information poor.
- Justice as participation, which refers to the creation of equal opportunities. As a category of justice it implies the elimination of negative inequality, plus the elimination of the marginalisation of the information poor in society. I furthermore argued that participatory justice positively emphasises the equality of all people in respect of access to equal opportunities. Based on Sen's capabilities approach towards justice I also made an argument that the purpose of participatory justice is to ensure that the information poor and the information rich in society must have an equal opportunity to fulfill their lives.
- Justice as enablement which is concerned with the extent to which society enables or constrains the self-determination and self-development of individuals. I pointed out that this form of justice oversees the process whereby societies, based on their moral obligation and responsibility, must allow human development to such

an extent that both the information rich and the information poor are enabled to make their own choices in order to fulfill their human well-being.

- Justice as distribution which can be described as the fair distribution of income, wealth and power in society with specific reference to the satisfaction of basic needs. I distinguished three different criteria for distribution that are of specific relevance to information poverty and the equal distribution of and access to information. These are merit, need and equality.
- Justice as contribution which is closely linked to distributive justice and relates to the manner in which society is organised in order to enable people to make a productive contribution to the general well-being of society. I argued that contributive justice must be concerned with the production and dissemination processes of information, particularly essential information, to address the information needs of all.
- Justice as retribution which is also known as punishable or transformation justice. I make a case that this category of justice is based on the principle that any normative mechanisms that are responsible for the application of justice would be hollow without an enforcement/punishment component. It does not only refer to the fair and just punishment of the guilty, but also to how to transform and change existing practices and institutions as well as human behaviour. I illustrated how this form of justice is applicable to information poverty. Issues that I address include free riders, intellectual property theft and the question of responsibility.

I also explained the relationship between these categories of justice as well as the three principles of justice that I identified.

7.1.5 Social justice and moral guidelines

The question then arises which guidelines, based on social justice, can be formulated to address the moral concerns raised in this thesis. I addressed this issue in Chapter 6.

I started this chapter by emphasizing the fact that social justice and human rights are the two fundamental tools that have universal validity and that can be used to address the moral concerns associated with information poverty. I furthermore illustrated the complexity of addressing these moral concerns by

deliberating on two issues. The first issues relates to the existing tension between economic realities and moral idealism. I argued that, when considering the manner in which social justice can be applied in information-poor communities, it must be kept in mind that market forces mainly control the economic processes in the information era, and that ethics primarily play a normative role to ensure fairness in these processes. The second issue pertains to the complex notion of information in terms of its economic understanding and application.

I then identified eight guidelines reflecting the different categories of justice and I used mostly examples from developing countries to illustrate the practical application of these guidelines. The identified guidelines are phrased as follows:

- Each person in the community has an equal right of access to essential information required to develop and exercise other basic rights.
- Access to essential information implies the accessibility and benefit thereof.
- The creation of a minimum information standard for society that will ensure a gateway to access essential information
- The creation of a minimum physical infrastructure that will allow "information deliverability" in the dematerialised economy.
- The creation of equal opportunities to exercise the right of access to information.
- The adoption of the right to communicate to ensure global dialogue.
- The allowing of the inequality in the distribution of information if it contributes to the improvement of information-poor communities' lives.
- Ensure the fair protection and promotion of indigenous information property and the transformation of society to enable reconciliation

7.2 Topics for further research

Based on the findings of my research on information poverty and social justice I suggest the following topics for further research:

7.2.1 Understanding the role that modern ICT can play to enhance social inclusion

As I was writing this thesis I came across a number of growing concerns regarding the "shrinking of the Internet" and the impact that it has on socio-economic development as well as political participation. This is against the current belief that modern ICT is contributing to socio-economic and political inclusion. It seems that current international intellectual property regimes tend to protect information in such a manner that people are increasingly excluded from the socio-economic and political benefits offered by ICT. This is apparently not only a "legal exclusion", but also a geographic exclusion. Web - based companies require in most cases credit card addresses from the country where they do business and most often do not deliver products outside of a particular country. This excludes most of the African countries from effective economic participation on the Internet.

7.2.2 Development of an information poverty index

In designing and implementing of policies pertaining to information poverty is it a necessity to "know what you are talking about" and the measure of information poverty.

Based on my description of an information - rich society and consequently an information - poor society, it is possible to develop an index to measure both qualitatively as well as quantitatively information poverty. This can be done within a community, region or country. The index can be based on the following broad criteria:

- Information infrastructure.
- Quality of available information.
- Physical infrastructure.
- Human capacity.

The development of such an information poverty index will amongst other assist and inform the appropriate stakeholders, policy makers and ordinary people on decisions they make regarding the lives of the information poor.

7.2.3 Understanding of the relationship between libraries and information poverty

There are multiple approaches and many stakeholders that can play a role to address and successfully alleviate information poverty. One of the possible ways to at least address some of the causes of information poverty, is to look at the role that libraries can play. This is particularly relevant to Africa and other developing regions of the world. It is my opinion that, although the history of libraries in Africa, due to a variety of reasons, did not proceed on a smooth path, libraries can and should play a leading role to address information poverty. Possible research topics can include:

- An understanding why libraries, or the lack of libraries, can be seen as a manifestation of information poverty.
- The investigation of the role that libraries can play in the dissemination of relevant and essential information to local communities.
- An investigation into the role that libraries can play as community information centers that serve the need of the community.
- An investigation into the role that the library can play in education. Such a study should not only be limited to information literacy. The findings of such a study can contribute to empower people to benefit from the use of information.

7.2.4 A final word

In doing this thesis over the last 5 years, I came deeply under the impression of the darker - side of the global information society. Modern communication technologies have changed for ever the way in which we live, work play, and think. It brings with it not only new socio - economic and political opportunities, but also a new information based reality that can be manipulated and even be recreated. A new form of discrimination is also introduced: information discrimination between those who have access to information and have the ability to use it versus those who are excluded from the main stream of essential information. A new and chronically form of poverty has evolved of the last decade namely information poverty and I am convinced, in the words of Sir William Arthur Lewis, that the cure to this poverty will not be money, but knowledge.

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