The University of Hull

A Critical Systems Thinking Approach for the Planning of Information Technology in the Information Society

Being a Thesis Submitted for the Degree of Doctor of Philosophy in the University of Hull

By

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TABLE OF CONTENTS

TABLE OF FIGURES

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ABSTRACT

This thesis presents a view of the situation of Information and Communications Technology Planning (ICTP) from the perspective of Critical Systems Thinking (CST). Nowadays with the increasing use of information and communications technologies and the possibilities of management of information, organisations and people in general focus attention on the planning of these technologies. Such type of planning has been often understood as a process that aims to get competitive advantage through the use of information and ensure that it will contribute to the improvement of the way of life of societies. The outcomes in different countries and problems encountered make necessary to explore the possibility of an alternative view in planning that could be more inclusive and participative regarding people involved and affected by this process.

In this thesis such a view is defined as 'strategic'. It considers that different groups of people have different concerns that are necessary to address. By using a combination between the systems theories of Autopoiesis and boundary critique, the strategic view is presented. It opens the possibility of including different groups of people and their concerns, as well as debating the consequences of addressing some of these concerns in action. Concerns are viewed as system boundaries.

A methodological approach to support a process of ICTP is defined from the strategic view. This approach was used to intervene at Javeriana University in Colombia in a project called "Exploring possible roles for information technologies at Javeriana University" from March to July 1999. Reflections about this project lead the author to propose enriching the strategic view with an understanding of the issue of ethics in the practice of ICTP and in the improvement of the way of life of individual and collective subjects. The ideas of power and ethics from Michel Foucault are used to enrich the strategic view of planning and to enhance critique on the ethics fostered by practitioners. This critique fosters also continuous awareness about the life projects of practitioners and of individuals in general, as a proposal to improve their way of life in the development of the information society.

Chapter 1: Introduction

1.1 The Aims of This Thesis

This thesis presents a critical systems thinking view of the process of information and communications technology planning (ICTP). Nowadays, with the emergence of this type of technology (ICT), societies and individuals find themselves with the possibility of adopting this technology and to make the information society a reality. Such society will be that in which the use of information pervades almost every aspect of daily life (Ireland, 1996a).

The view developed for the process of ICTP is critical of the current development of the information society and to traditional approaches to doing ICTP. It is argued that a more inclusive approach for ICTP is needed. In such an approach, different concerns of people about their way of life are brought into debate. Concerns are dealt with and action should be taken once its consequences are discussed with different groups of people involved (directly or indirectly) and people affected in a process of ICTP. Practitioners are encouraged to deal with people's concerns (information and non-information related) and to include themselves in the process as agents who have their own ethical concerns.

To develop the view of and approach to ICTP, there are some aims that are pursued throughout the chapters. These aims are:

1. To situate the process of ICTP within the development of the so-called information society, and to provide a 'strategic' view of ICTP. In such a view different concerns of individuals and groups of people can be included to be addressed in the definition of any initiative aimed at improving the way of life of individuals and collectives (with or without the use of information technology).

2. To develop a more inclusive perspective for planning under the strategic view for the information society. This inclusion means promoting a greater degree of participation of people involved (directly or indirectly) and affected by a process of ICTP. It should be possible in planning to include a variety of people and their concerns about their ways of life.

3. To review existing approaches for planning and for ICTP, in order to evaluate the degree of inclusion of different people and concerns that they foster. This review also considers the role which practitioners play when intervening in processes of planning.

4. To review approaches within the realms of systems thinking in general and critical systems thinking (CST) in particular, which have been applied to ICTP, regarding the inclusion of different concerns and people, the role of practitioners and the dealing with ethical issues arisen in the practice of intervening in ICTP.

5. To combine the systems theories of autopoiesis (Maturana and Varela, 1987) and boundary critique (Churchman, 1979; Ulrich, 1983; Midgley, 1997a, 2000) in a framework that supports a more strategic and inclusive view for the process of ICTP within the information society. These theories address the issue of raising concerns and the critical inclusion of people.

6. To apply and evaluate in practice a methodological framework that combines the ideas of autopoiesis and boundary critique, as well as the complementarism between systems methods. Such a framework has been used in the management of an ICTP process called "Defining possible roles for information and communication technologies in the education developed at Javeriana University in Bogotá, Colombia". This process was conducted by myself in collaboration with Mr Diego Torres from Javeriana University and Dr Gerald Midgley from the Centre for Systems Studies at the University of Hull during the period between March 1999 and July 1999.

7. Having explored a strategic view for ICTP in practice, another aim of this thesis is to inquire more deeply into the issue of ethics that arose during the process conducted at Javeriana University when addressing different concerns identified in action, and which became an issue of concern for the author of this thesis. This issue was manifested in the distinction of different ethical concerns exhibited by people (including myself as a researcher). In this thesis ethics is explored from the perspective of the emergence of an ethical subject (like myself) in his/her interactions with other individuals and groups and the continuous reflection that he/she can develop regarding his/her own ethical project.

8. From the above exploration of ethics, another aim is to introduce a critical notion to enrich the practice of ICTP and the use of the methodological framework for future interventions. This notion is the notion of power-ethics, derived from the work of Michel Foucault on ethics (Foucault, 1977b, 1984a and 1985). This notion should impact also the role of practitioners in processes of ICT planning, as it fosters the idea of a continuous development of a life project in ethics for individuals, a project based on critique and action.

The above aims are achieved through the argument which structure is developed throughout different sections. This structure is explained as follows.

1.2 Structure of the Argument

This thesis presents a personal journey that I have developed during the past three years. In this journey I have been reflecting on my own experience as an ICTP practitioner and on what has happened in the realms of ICTP and Critical Systems Thinking (CST). Personally I have been reflecting more strongly on the issue of ethics after completing my participation in the process of ICTP at Javeriana University. It seems that during this time in Colombia I lived through a continuous awareness about myself and others regarding ethics. Then it took me a couple of years to discover the type of ethical subject I am, and this search is not entirely finished yet!

Having being concerned at the beginning with what was happening with the information society and critical systems thinking, I became more interested with what was happening with myself as an ethical subject. This is why through the chapters reflect my own concern about what happened to the people I was working with and at the end I present what happened to me.

The structure of the thesis is developed mostly according to my personal journey. Some of the chapters have been re-written after I completed my process at Javeriana University and I clarified what I was aiming at with myself. I will summarise the content of each section and how they contribute to the whole argument.

1.2.1 Section one

In this section I introduce the process of ICTP within the information society and two views about this society, one idealistic and one strategic. The idealistic has prevailed in the development of initiatives. It aims at development under the premises of providing universal access to people to access information. Considering emerging problems, an alternative view for the information society is proposed. It is called a 'strategic view' and is derived from recent developments in the telecommunications sector. It is a view that considers that different groups of people are in continuous interplay, and different concerns can be identified. Participation of people should be fostered in the design of any initiative that purports to bring improvement in individuals' ways' of life.

This strategic view is developed further, by exploring existing methodologies that are used in the process of ICTP. Exploration of approaches in the realms of organisations and systems thinking (including critical systems thinking) brings an identification of a core concern in planning: gaining competitive advantage by the use of information. In this thesis, this concern is challenged, as well as the possibilities that other approaches offer for the raising of different concerns by practitioners. Possibilities seem to be limited under the core concern identified and other assumptions brought by methodologies for ICTP.

An alternative path to ICT planning can be taken which would address the above claim of openness and flexibility if planning is considered as a continuous process of managing people's emerging concerns. These concerns represent people's aspirations, values, expectations and interests. Concerns are related not only to the realm of organisations or information management but to society in general.

Then an exploration of the realm of systems thinking and critical systems thinking applied to ICTP is conducted, including the use of Critical Systems Thinking (CST) in the realm of ICTP. In this exploration it is argued that although there is a greater degree of inclusion of people and their concerns in these applications than in traditional approaches to ICTP, the role of practitioners still seems to be limited to the provision of information systems plans. Nor do the issues that have ethical implications seem to be explored in detail when practitioners raise them. Perhaps

there is there is the need to be critical of these issues and provide self-awareness capabilities to practitioners when they are raising ethical concerns.

1.2.2 Section two

In this section, the basic ideas of an altemative approach for the process of ICTP are presented and developed in practice. I depart from describing the systems theory of autopoiesis, which offers a biological explanation of reality as lived in interaction by human beings. The core idea from autopoiesis is that individuals flow continuously through these domains of interaction and in each domain they live a particular concern which is justified as a specific braiding of emotioning and languaging that specifies 'who is an other' (Maturana, 1988, p. 75). Autopoiesis calls for an invitation to recognise that "we only see what we see and what we see does not exist" (Maturana and Varela, 1987, p. 242). The biological condition of human beings makes us accept that there is the need to recognise other concems and other people with whom interaction can be developed in a path of mutual acceptance and collaboration.

Then some applications of autopoiesis are reviewed. It is argued that in those there are elements that need not to be taken into account in the use of autopoiesis. One is the flowing of individuals through different domains of interaction, guided by different concerns. The other is the possibility of human beings exerting agency in order to address issues of concem and to promote spaces of interaction. With these two elements, the possibility of raising different concerns in ICTP by using systems ideas is recovered and developed further in later chapters.

It seems that practitioners need to exert a degree of critical thinking about the emergence of different concems. In terms of systems the theory of boundary critique seems to offer a complementary ground to that of autopoiesis for the management of concerns in the practice of ICTP. The main tenets of boundary critique and systemic intervention as developed by Midgley (1997a and 2000) are presented. From autopoiesis and boundary critique, a synergy is proposed to account for a more inclusive and critical approach for ICTP. From this approach, a methodological framework is defined. In it, concems from people are seen in terms of boundaries. If action is developed towards improvement any issue concerning action can be

evaluated in terms of the boundaries that it privileges. Boundary critique can be developed around concerns and actions emerging in the process of ICTP.
This methodological framework is then used to intervene in the process of ICTP at Javeriana mentioned at the beginning of this introduction ("Defining possible roles for information and communication technologies in the education developed at Javeriana University"). The practice is described in two main phases: a phase of distinction (in which different concerns are identified) and a phase of design or improvement (in which concerns are addressed in action). These two phases were considered as two different 'lenses' with which the situation of improvement at Javeriana was observed. During the process at Javeriana researchers moved continuously between these two phases.

What emerges from the practice of ICTP using the methodological framework defined is a distinction of different domains of interaction in which individuals (including practitioners) are immersed. In these there are different ethical concerns or ways of doing 'good'. I — myself as a practitioner – found that I was a subject raising particular ethical concerns, in situations in which I was not able to include others in the living of such concerns. This distinction appeared in both phases of the process of ICTP and led me to enquire more deeply into the issues of an ethical subject and ethics that arose in this systemic intervention.

1.2.3 Section three

In this section, the strategic view for ICTP is enriched, considering the issues arisen from the practice at Javeriana University and my own personal concerns regarding ethics. I start by reviewing some of the developments of Critical Systems Thinking (CST) which are concerned with self-reflection and reflection with others. I argue that in such approaches, there is the need to enhance the grounds for reflection about ethical issues that are raised by individuals, and manage emerging conflicts arisen from the existence of different ethical issues to deal with.

In CST Michel Foucault's the notion of power has been introduced to enhance critique on the identity of subjects. Power brings awareness of the existence of individuals as subjects immersed in webs of power relations. Power relations are in continuous tension with each other. These and other ideas are considered as

relevant for an appreciation of the interaction between individuals and others when there are possibilities for self-reflection.

Bearing in mind the possibilities that have surfaced Michel Foucault's work on power, the issues of power and ethics are explored. I will argue that Foucault's work provides an account of the phenomenon of the 'subject' which is related to the existence of power relations, which also shape and are shaped by the 'ethics' of subjects in the process of producing knowledge. This notion offers a path to enhance a critique of systemic intervention regarding the raising of different ethical issues by individuals and groups.

Power-ethics is used in this section to inform the raising of concerns and boundary critique in the practice of a strategic approach towards ICTP. A notion of a concern as a boundary that influences the ethical identity of individuals and groups is defined. Around this notion, a critique can be developed of individual and collective ethical identity by taking some of the elements defined by Foucault to account for the historical emergence of different modes of 'ethical subjectivisation' of individuals and populations. Boundary critique will also enrich distinction of different boundaries related to ethical identity. From the notion of power-ethics, any action defined as a result of the above enhanced form of critique in ICTP needs to account for the existence of power relations and for the continuous tensions that there are between them.

The implications of introducing the notion of power-ethics for the practice of ICTP seem to derive from an awareness of this practice as a practice immersed in power relations in which there are different relations influencing and being influenced by the ethical development of subjects (individual or collective). Practitioners should be aware of their own concerns and of the continuous tension that their interaction generates when dealing with ethical issues. These issues should be analysed from the perspective of the possibilities and constraints of action that they draw for ethical subjects. For the development of the information society, practitioners should be critical about the concerns that people want to foster in action, and see the implications of these for their own ethical development and for the development of others.

With these and the rest of ideas contained in this thesis, I intend to contribute to the ongoing debate that has been fostered in both the realms of information technology and critical systems thinking. It is a debate that needs, more awareness in my view, about the consequences of action. I hope this thesis is a useful reference for those who like me are concerned with the ethics of the practice of ICTP and the ethics of the information society as a better society for the human kind.

1.3 Conclusion

In this chapter I have introduced the main aims of this thesis and the structure of the argument that I will develop in the following sections. This argument is the product of my reflections and experience as an ICTP practitioner and critical systems thinker. I consider that the view developed in this thesis is useful to provide a more inclusive, participative and critical account of ICTP within the information society. I also consider that no view or approach about ICTP is worth while if there is no continuous reflection from practitioners about their own concerns and the kind of ethical life project they want to develop with others. By the end of this thesis, I hope to convince the reader of this.

Section one: Information and Communications Technology Planning in the Information Society

Chapter 2: The Information Society

2.1 Introduction

This chapter introduces the first area of research for this thesis, the information society, and presents two views about it: one that can be called 'idealist', and another 'strategic'. The strategic view is preferred towards the end of the chapter, as it gives a better degree of participation to people in defining the type of society that they want with the information society.

Since the 1990s a new order in society has been promoted by developed countries with the purpose of bringing more development in a global context. This is called, in a political sense, the information society (Bangemann, 1994). The new order takes advantage of the convergence between different types of Information and Communication Technology (ICT) (Commission of the European Communities CEC, 1997) and is also a response to the emerging industry of microelectronics in countries like Japan and the U.S (Senker, 1992).

The premise of implementing this new order into implementation should materialise in the improvement of opportunities for people in society through the use of information. It is said that information 'accessible to all' will contribute to enhancing existing democratic systems by allowing citizens to participate more fully in their societies and in the global economy. Also it will develop autonomy in individuals as they will be more able to develop their own potentialities and desires (Bangemann, 1994; Negroponte, 1995; Ireland, 1996a; Rogerson and Bynum, 1996; Wresch, 1996).

For developing countries, there is an opportunity given by this convergence between information and communication technologies (ICTs) that could allow them to catch up with development (UNESCO, 1992; Economist, 1996; Van Audenhove et al, 1999). Information and communications technologies can create a new infrastructure of communication through which knowledge can circulate (Agenda-Conectividad, 2000a). Knowledge dissemination should provide opportunities for education, developing new businesses and exchanging experiences and ideas between people.

2.2 The Idealist Vision of the Information Society

According to Senker (1992) and Gillespie (1993), during the decade of the 80s the pressure on countries like Japan and the U.S, to generate new sources of income was high. The microelectronics industry appeared to be promising. By fostering this industry these countries gained an advantage over others and started to penetrate different markets with personal computers and communication devices (Economist, 1996). A strong communications infrastructure (the information Superhighway (Gore, 1991)) also allowed different businesses and institutions to be connected to make communication more efficient (Mansell, 1996).

The success of this strategy led other countries to create and implement a similar strategy with the difference of considering other aspects that could provide more benefits from this new economy for a society (Dutton et al, 1996; CEC, 1997). This was the case in Europe in which a concept was introduced: the information society (Bangemann, 1994).

This concept defines a vision in which nearly every aspect of society is benefited by the provision of information in the form of different types. What makes a society successful is knowledge and the way is shared using ICTs (CEC, 1997; PNI, 1997; Agenda-Conectividad, 2000a). This knowledge can be "information, data, images and imagery, as well as attitudes, values and other symbolic products of society, whether 'true', 'approximate' or even false."(Toffler, 1991, p. 19). Among the benefits to be obtained by transforming current societies into information Societies there can be (Ireland, 1996a, p. 3):

- Participation in the global economy
- Success for the enterprises
- Employment growth
- Better *quality of life* for citizens (my own Italics).

These benefits of ICTs in society have been emphasised lately in the G8 meeting in Okinawa (G8, 2000b, p. 1) as:

- Creating sustainable economic growth
- Enhancing public welfare
- Fostering social cohesion
- Strengthening democracy
- Increasing transparency and accountability in governance
- Enhancing cultural diversity
- Fostering international peace and stability

2.3 State of the Art in the Development of the Information Society

Despite the above benefits heralded in the rhetoric of the information society, it has been reckoned that in the development of actions in practice there are some problems. The forces of a liberalised-market system are driven by supply and demand, by profitability rather than by the needs of marginalised or poor communities or the possibility of providing universal access services to different groups of a population (Ireland, 1996a; Pereman, 1998; Menzies, 1996). The uncertainty in prices in the market contributes to situations in which the self-interest of companies or shareholders prevails at the end of the day in offering products and services to customers (Menzies, 1996; Pereman, 1998). To counter-balance this, it seems necessary then to ensure that people are not excluded from enjoying benefits stated in the vision.

In this respect governments are called to be the main actors in ensuring that the benefits of new actions in the information society are distributed evenly in different sectors of populations (Bangemann, 1994; Ireland, 1996a). Governments cannot just issue policies that foster competition and enable ICT industries to be competitive at the international level. They should also shelter some sectors of the economy and population in order to provide benefits for some communities and the public in general (Sharp and Walker, 1990; Mies, 1995; Freeman, 1996; Moore, 1997; OECD, 2000).

The state of the art in the development of the information society worldwide shows that there are some problems regarding the inclusion of different groups of people in access to the benefits promised. In the U.S for example, it has been verified that despite a big use of technology the economic gap between different groups in society has increased (Digital-Divide, 1999). There have been important efforts to connect schools, libraries and other community centres. But some people are still marginalised from the opportunities offered by ICTs. Factors identified as inhibitors to access to ICTs like the Internet or basic telephony correspond to geographical conditions, race, and income[1]. Solutions proposed to address the above problems still involve the assumptions described below. It is argued that it is by liberalised-market competition, partnership in the development of infrastructure and massive awareness that people will have equal access and transparency in the use of services.

According to the report "Falling Through the Net: Avoiding Digital Exclusion" (Information Society Commission (ISC), 1999), in the U.S it has been found that the above policies have influenced reduction of prices for personal computers and telephone network access costs (p. 3). These findings suggest that

> pro-competition policies, to reduce the prices of basic phone and information services, and universal service policies will continue to be important parts of the solution [of narrowing the existing gap of access to people to information services] (ISC, 1999, p. 3, my brackets).

In Ireland, despite an immense effort to bring the attention of the population to the potential offered by ICTs, access to ICTs is still uneven among different groups of the society (Ireland, 1999). People are still concerned about how the new changes are going to affect them, having a fear of using them. Also, differences in the usage of technology between sexes are notorious (Ireland, 1999).

Ireland has been recognised as a leader in ICT innovation. According to Wickham (1997), however, existing social conditions generate an environment that fosters lack of social cohesion. Education tends to be too general or too specific to satisfy the needs of ICT companies; academic research is not a priority, or is oriented to the immediate needs of the industry. The model of development resembles the

[1] In high-income sectors of the population differences due to race or sex have been reduced (Digital-Divide, 1999).

American model that fosters the widening in inequality of income. In such an information society, Wickham says that "individuals buy and sell across the world, but are unable to sustain relationships of mutual trust with their neighbours" (Wickham, 1997, p. 289).

In Ireland the strategy of spreading the use of ICT massively is not providing all the benefits promised. There is still the risk that people well trained in the use of ICT continue to find it attractive to emigrate to other countries that offer better economic conditions for their work (Oriain, 1997). What if society needs people? The case of Ireland calls for a more profound understanding of people and their interests 'before or in a parallel way to' embarking in the implementation of ICT infrastructure and training. It also calls for the following questions: what are we to have information for? Is it for allowing individuals to gain a way of surviving? Or is it a way of improving society as a whole? What do people think or want?

Van Audenhove et al (1999) argue that in the development of the information society in Africa just a few of the social goals for African countries have been addressed in action, and these have involved private companies. Basic information services are still not available (Wresch, 1996; Van Audenhove et al, 1999). It is necessary then to have a different approach to the development of ICT services, considering the local conditions and real needs of people. Institutions need to have knowledge and a socially responsible attitude to manage new opportunities for the local benefit, creating a culture of information and developing skills to take advantage of the innovations in ICTs. Van Audenhove et al (1999) state that

> the real task ahead for developing countries will be to build up the institutional environment in which information will lead to applicable knowledge in function of development (Van Audenhove et al, 1999, p. 391).

Even with the above awareness, it is still not clear how the achievement of conditions for the use of ICTs will lead to improve some of the social issues that societies are concerned about (Van Audenhove et al, 1999). It seems that it is necessary to involve different groups of people in society, not only in the definition of how to bring changes about but also to discuss the nature of the change in terms of what needs to be done and who will be benefited by a change towards the information society.

2.4 The case of Colombia

In Colombia, efforts to start developing the vision stated by the information society began in 1997 with the definition of the National Telecommunications Plan (PNT, 1997) which was developed by the Ministry of Communications. This plan laid out a vision for the sector of telecommunications, considering the existence of a monopoly in the services by the National Telecommunications Company (Telecom). On behalf of all citizens, the plan defined a set of guidelines to develop a liberalised-market system and enhance the existing telecommunications infrastructure.

Also, a new role for the state as a regulator of the liberalised-market was devised. This role was combined with the function of promoting and leading programs and projects to bring basic services to marginalised sectors of the population. The state was called to represent the interests and concerns of all the citizens.

The above plan also defined forecasts for new services bearing in mind projections of demand from existing and new users. These services included mobile communications, digital services, television, radio, trunking[2], etc.

The plan was complemented by the development of the National information Technology Policy (Politica Nacional de Informatica PNI, 1997). This suggested some areas of action in order to develop a national information technology industry. It was argued that in order to achieve that, different sectors of the economy needed to work more closely together and needed support from the government in areas like commerce, taxing and standards. It was said that the education and industry sectors needed to strengthen links in order to provide competitive solutions for the industry and ICT products and services that could compete in the international markets.

In 1999 and 2000 new planning efforts were made to overcome the existing problems identified in the development of the policy. Among the problems encountered were the lack of access of some marginalised groups to telephone-based services, a confusion of what a provision of universal access service meant and how it could be implemented, and the low level of connectivity of people to Internet services (Compartel, 1999, Agenda-Conectividad, 2000a). A financial problem also produced a reduction in the investment in new technology for local and regional community groups and for the public in general (Compartel, 1999; Agenda-Conectividad, 2000a).

In the new plans, it was argued that a new type of knowledge-based economy was needed for Colombia[3]. Doing so would bring benefits for the country like having an attractive environment for investment, having a knowledge capital to be used to achieve development, developing an e-conomy (electronic commerce based economy[4]) which could foster growth more easily than the traditional economy and which could complement it.

To achieve that, the plan stated that it is necessary to *spread massively* the use of ICTs via universal access and universal services[5]. This included: offering a good telecommunications infrastructure with an attractive price structure to companies; providing more education based on the use of ICTs; establishing community access centres for Internet usage; developing awareness campaigns among different groups of society; creating and maintaining Internet-based information-web-sites for public benefit; and adopting ICTs more fully in the industry sector (Compartel, 1999; Agenda-Conectividad, 2000).

Efforts are currently being made in Colombia to promote awareness of different sectors of the potential benefits that can be achieved by the use of technology (Ciencia-y-Tecnologia, 2000) and to achieve the goals defined in the last plans (Agenda-Conectividad, 2000b). These efforts still seem to be behind the expectations of world organisations like the United Nations which foster the development of Colombia as a knowledge network society (El-Tiempo, 2000). To do that, investment in technology, research and education needs to increase substantially with international co-operation. Also the quality of education needs to be reviewed to see if it is giving students what the country needs for its development (Ciencia-y-Tecnologia, 2000).

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[2] A technology of communication using hand held devices. It is very appropriate for private communication between two people with immediate access to communication channels. It can also be extended to include communication between a group of people.

[3] In the plan (Agenda-Conectividad, 2000a), the term 'knowledge-based economy' is, as just mentioned, a reference to the type of economy that countries like Singapore have developed. As far as I understand it, this means considering knowledge as a resource that brings more possibilities for action when it is shared, re-used or results in products that are accessible to different groups of people. Information technology is an essential support for this new type of economy.

[4] This new economy implies the interaction between ICTs and traditional sectors of the economy (Agenda-Conectividad, 2000a).

[5] The new plan makes a distinction between universal access and universal services. In the short term, it is expected that access to basic telephone services will be available to marginalised communities in the rural and urban areas. In 10 years time it is expected that the majority of the population will have access to information services like Internet and e-mail (Agenda-Conectividad, 2000a).

From the above cases, it seems that the adoption of an idealist model for the information society has brought situations in which people and their concerns, values and aspirations have been left out. Moreover, the promises of access and equality in the use of information to improve the way of life in societies have not been fully achieved. Why is this? What assumptions of the adoption of the information society should be challenged?

2.5 Towards a New View of the 'Information' Society

Currently, different criticisms of the way the information society has been implemented have been levelled, considering the impacts in different areas. Criticisms challenge approaches that promote the massive use of ICTs in society by arguing that some other factors need to be considered when designing or implementing technology. Some of them will be described as follows.

For Menzies (1996), technological changes in the information society have created a 'mono-culture' to which people are alien. The language that has emerged (with names like 'technological downsizing', 'virtual', 'service access') does not correspond to what people have lived in their own communities. People have become passive voices of this culture. What has been imposed is the reality of some corporate systems among communities and their members. To counter the above threat, Menzies argues that a more democratic information society is needed. People need to speak out; they need to understand ICTs in terms of their own culture. ICTs should be serving communities' needs. They should decide what kind of technology they need, and complement it with face-to-face communication, a more intimate communication.

For Perelman (1998) the emphasis of the information society in the liberalised market has left out a deeper understanding of society as composed of groups which struggle continuously to have information and control others. He sees that in organisations, information provision has enforced the control of managers over workers. Informal knowledge that made workers valuable in the past is being used now by managers to control the tasks performed by workers and hence the worker themselves. According to Perelman (1998), in a future society in which everyone develops his/her full potential the structure of society as composed by different groups with power over others (managers, workers) has to be re-designed. This also involves defining

information as a free commodity that could benefit different groups, and changing structures in society that foster inequalities in power.

For Miles (1996) the changes brought by the information society need a broader understanding of the different dimensions that they bring for individuals. A new view of society would have to look at it as in a continuous process of organisation and reorganisation, in which there are barriers but also possibilities for change. In this process, the outcomes depend on actors and interests that shape ICT applications[6]. Social choices are bounded; however the boundaries are uncertain. People are social actors with unequal chances but all of their actions have consequences.

In the definition of initiatives for the information society, it has been argued that it is essential to define the nature and scope of information technology (Webster, 1995; Bannon, 1997). The information society is a concept whose limits are unclear, so it is necessary to define these limits with those involved and affected by its development (Webster, 1995; Bannon, 1997). In this regard, services and policies in areas like 'universal access' have to be defined carefully, considering the possibilities of implementing them in a certain regional or local context. Also the most adequate possibilities of use for those who are going to be affected by their implementation should be taken into account (Gillespie and Comford, 1996; Mansell, 1996).

From the above claims, it seems then that in order to improve the development of the information society, more participation of people is required, more inclusion of them and their concerns, as well as debating the possibilities and constraints for action. Also, the inclusion of certain human values in the development of initiatives should play an essential role in 'shaping' the information society. This can be better seen in the definition of two views about the information society, one idealist, another strategic.

2.6 An Idealist View versus a Strategic View

Regarding the current development of telecommunication 'intelligent' networks[7], Mansell (1993, 1996 and 1997) and Mansell and Silverstone (1997) have argued that current developments in the infrastructure of telecommunications have been based on what they call an 'idealist model'. In the idealist model it is assumed that in order to provide more and better services to different groups of society it is necessary to have a mature and fully articulated competitive market.

In the idealist model (view), there seem to be no barriers to market entry and exit[8]. Technological innovations will converge and this will blur the distinction between public and private interests on implementing and using them as well as between the companies that provide services. For any imperfection caused by the operation of the market, 'little' regulation can be introduced to counteract possible effects. The supply orientation of the market will be replaced by a demand-led orientation (Mansell and Silverstone, 1997).

It seems that the information society has been developed following the ideas of an idealist model in which claims for the betterment of society are going to be achieved by promoting universal access to information and services. This has been sustained by the assumption that market forces will solve problems of inequality and education to access to the benefits of more participation of citizens in the shaping of their societies. Results show that more involvement of people is necessary.

Instead of an idealist model, an alternative model which aims at improving the design of policies for the information society and from there to improve its development has been proposed. It is called a 'strategic model' Mansell (1993, 1996, and 1997; Mansell and Silverstone 1997; Mansell and Steinmueller, 2000). In this model, development of technology and implementation in society is seen as contingent upon political and economic interests. *The concerns of different groups need to be clearly defined, represented and defended.* The goals of implementing new services or infrastructure have to be defined and debated with those involved and affected. In the evolution of technological changes there is still the chance to include instances of the

[6] "The diverse interests of groups and individuals may also lead to particular applications being pursued and others left unexplored...for instance ICTs make many new options available but cannot fulfil every wish on demand" (Miles, 1996, p. 43).
[7] This concept means an enhancement of the management capabilities of telecommunication networks (PNT, 1997).

issue of public interest in a continuous manner in the debate and in definition. This chance means for example that

> the technical design of public networks should not be left to those with acknowledged engineering expertise...if policy and regulation are to encourage more equitable access to electronic means of communication, the social and economic issues raised by the technical design and implementation of the intelligent network must be addressed by a community far wider than the network engineers (p. 13).

In the strategic model, Mansell and Silverstone (1997) conceive of technological change as interplay between actors and institutions, between agency and structure. Change is strategic and obeys the struggle of groups to gain strategic positions. Analysis of this interplay is focused in the degrees of freedom of choice that actors and institutions have regarding competing interests, conflicts and intentions. Innovation process is "a dialectic in which power is exercised in the production and use of technological artefacts as well as in the institutionalisation of behaviour " (Mansell and Silverstone, 1997, p. 6). Design of ICTs is the result of contradictions in actors' choices as they become immersed in institutions (Mansell and Silverstone, 1997, pp. 8-9).

Under a strategic model, activities like design (or planning) are considered as conceding a more active role to people. For Mansell, (1997), design involves "actions that constrain and create opportunities for the actions of proximate and distant others" (Mansell, 1997, p. 27). Activities of interaction should open participation to people; however, it should be considered that this participation might suffer from constraints within people and institutions. This is the case for example in the telecommunications sector, in which Hawkins (1995) has found that there are structural impediments within the user community and institutional barriers in the standard decision-making mechanism that could prevent users from becoming conventional participants in a definition process.

[8] For example it is assumed that the Public Telecommunications Operators (PTO's) "welcome competition and marked liberalisation since they are free to compete across the same range of services as their competitors" (Mansell, 1993, p. 8).

From the above, it follows that there is an alternative possibility for development of the information society. It is based on the choice that people have according to their concerns and also existing conditions that could make proposed changes more feasible. People should pay attention to how they (we) develop and accommodate technology in our daily life, and be involved in activities of shaping the technology in the way of life of society (Bannon, 1997). Individuals should be more involved and encouraged to develop the type of society they want for the future. This should be considered a more 'strategic' view of the information society.

This possibility should be further explored to see its advantages and disadvantages when considering that the information society should help in the improvement of the way of life of societies worldwide. For the realm of ICTP, practitioners should foster a more strategic view of technological change and should be able to manage the different concerns and interests of diverse groups of people. Some questions arise regarding the strategic view: how to develop it? What are the opportunities and implications? What issues have to be considered regarding participation of people? Will this strategic view of the information society affect the role ICTP practitioners play? If so, how?

In this thesis, answers to these and other questions will be provided, as well as more questions that I intend to leave open for the reader, and for myself, to be addressed in the future. From the above questions, the raising of different concerns also brings a practitioner to the fore in relation to the *ethics* that could be nowadays pervading actions of people in the development of the information society. This issue will be explored throughout this thesis, as it appears in the review of ICTP methodologies and approaches, as well as in the practice of ICTP and in the self-reflection developed by myself as a practitioner.

2.7 Conclusions

This chapter has presented a review of the state of the art of the information society, in which there are two views involved. The first view is one in which existing promises of having a better society via the provision of universal ICT based services can be achieved. Based on this view, developed and developing countries seem to have been developing actions towards satisfying the necessary conditions which will put in place the stated benefits.

The other view presented is less idealistic than strategic, and presents the information society as one in which there is interplay of different actors with different *concerns*. This view concedes a greater degree of participation and choice to individuals about the actions to be developed. Individuals can contribute in the shaping of the change that they want, according to particular conditions.

A strategic view of society opens up the possibility of raising the concerns of different groups of people and debating the ethical consequences of actions or plans. Within a more 'strategic' view of the information society, different concerns should be brought to debate. For ICT practitioners, there are different levels (policy, standards, planning, and development) at which definition of concerns about society can be raised. The cases of telecommunications and information-systems related activities have been brought forth as important references in which the involvement and participation of people has to be selective in order to allow participants to be able raise their own concerns.

For countries like Colombia, assuming an alternative view different from the adoption of what others have done should give better possibilities for action. Concerns of the people that are going to be benefited or marginalised from the use of technology should be brought into debate. There is the opportunity of putting definitions 'in context', and of using ICTs in addressing needs of people but taking into account what definitions mean locally. Issues of concern like 'Universal Access' and other services need to be debated in relation to the groups of people involved, their concerns and the feasibility of proposals in action when addressing these concerns. Other proposals for change addressing concerns emerging from the way of life of people in society should be also considered when planning for the information society.

With these ideas in mind the next chapter will explore some of the approaches used by practitioners in ICT practice.

Chapter 3: Strategic Information Technology Planning in the Information Society.

3.1 Introduction

In the previous chapter, a possibility of having an alternative view for the development of the information society was opened up. This possibility acknowledges the existence of interplay between people with different interests. In this possibility, there is a degree of choice and involvement that should allow the shaping of the scope and of initiatives that could bring improvement in the way of life of individuals in society.

In this chapter, some approaches and methodologies in the realm of Strategic Information and Communications Technology Planning[9] (ICTP) are examined. ICTP consists in defining and implementing information-based solutions[10] with information technology. Some methodologies that have been used in the realm of ICTP[11] are explored and some of their main concerns highlighted, as well as their limitations for enhancing the scope of reflection in wider issues that affect an information society.

The term 'strategy' will be used in this chapter as it has been used in the literature of ICTP and strategic planning. It does not resemble — in principle — the characterisation made of the 'strategic' view of the information society. However the important considerations about strategy making will be incorporated in the 'strategic' view being developed for the information society.

3.2 On Strategic Planning

In organisations, a process of strategic planning has become necessary in order to define action plans that guarantee survival and economic growth. The general idea behind strategic planning seems to be an understanding of an organisation as in continuous *competition* with itself and others.

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[9] My use of this term also includes names like SISP (Strategic Information Systems Planning) (Reponen, 1992).

[10] This may also include the process by which telecommunications infrastructures are defined and implemented.

[11] Some of the methodologies and approaches reviewed have been used in the definition and development of information systems. In such cases this process is called information systems strategy and implementation (Walsham and Waema, 1994).

A context of competition for an organisation is better characterised as composed of different actors, concerned with exercising their own power to gain the maximum profit they can in the markets in which they compete. An adequate response to the market can be developed in different ways: better product quality, service quality, attractive cost, additional benefits for customers, etc. This response will allow an organisation to balance forces and gain a better position in negotiation, as well as to manage uncertainties more easily (Porter, 1988a,b; Quinn, 1988, Quinn et al, 1988).

In the realm of strategic planning, Porter (1988a) describes the set of actors in competition:

> customers, suppliers, potential entrants, and substitute products are all competitors that may be more or less prominent or active depending on the industry (p. 58).

These actors exert their abilities to compete by developing strategies that will maintain or develop their position in the markets in which they compete. For Porter (1988a,b) there are some external forces that motivate competition in a market. These are:

- Threats of entry. Different factors (price, production cost) inhibit — in principle — new competitors to try a new market dominated by others.
- Powerful suppliers and buyers. Competitors can influence the corporate profit of others by raising or reducing prices of supplies or choosing other companies' products.
- Substitute products. A continuous striving to create more attractive products at a lower cost than competitors dominating a specific market.
- Rivalry[12]. A desire to take the lead over others in a market which size is seen as potentially beneficial for a company that dominates it.

Parallel to this set of forces, which seem to be external to an organisation, in the definition of strategies there is the need to consider some 'internal' factors that obey the development of an organisation as such. For Quinn (1988) these are related to issues like: diversification, divestiture, major reorganisations and relations with government. These factors could also contribute to the gaining and maintenance of advantages over competitors.

[12] Porter (1988a,b) refers to the experience of the market in the US in the 80s where competition was strong and perhaps the size of the market was not enough, so strategies had to emphasise being competitive by taking the lead over others.

In the process of strategic planning, managers need to produce a broad strategy that encompasses different factors (internal, external), as well as different interests from those who take decisions. A strategy should also leave room for contingency or emergent plans and should encourage the achievement of a shared vision, a desired state of an organisation in the future (Mintzberg and Waters, 1985; Quinn, 1988, Quinn et al, 1988).

3.3 ICTP as Strategic Planning

In the late 80s and 90s, the view of information and communications technology (ICT) in organisations as a *competitive weapon* (Hammer and Champy, 1995) has become a commonplace. This offers advantage to those organisations that integrate it in their operations. In the ICT sector, current convergence of different information-based products and services (CEC, 1997) represents a threat for companies and organisations but also an opportunity for their gaining of advantage over others.

The process of ICTP seems to have taken for granted this assumption of competition from previous strategic planning approaches. With the current convergence of different technologies around the use of information (CEC, 1997), businesses and organisations are focusing their strategies on making themselves information-based businesses (Earl, 1998). This idea comes from a situation in which competition is based on providing faster, cheaper and more adequate information to customers. In an environment of high competition and pervasive information-based products and services, organisations have to act quickly to counteract the efforts of competitors.

Hence, in the planning of ICT it is considered that ICT should not only offer support for generic strategies, but also possibilities for enhancing business performance by creating new products and services (Andreu et al, 1996; Earl, 1998). For Henderson and Venkatraman (1999) the above means that competitive ICT strategies should also be 'fit' in two dimensions. First, fitness should be achieved in the *integration* of different technological solutions and products in such a way that a user sees only one computational environment[13]. Secondly, ICT strategies should be continuously *articulated* with business strategies. Articulation of strategies demands also an alignment between organisational-processes, organisational structure and ICTs used

[13] Henderson and Venkatraman (1999) call these two factors strategic fit (interrelationships between internal and external components) and functional integration (integration between business and functional domains).

in order to develop ICT-based strategies successfully (Ward et al, 1990; Henderson and Venkatraman, 1999).

3.3.1 An 'information based business strategy': emerging concerns.

Considering the suggested presence of information technology in almost every aspect of daily life, nowadays it has been suggested that businesses should formulate an *information based business strategy* (Earl, 1998; Hender and Venkatraman, 1999). Such a new style of planning commits organisations to create a shared vision that will guide the implementation of different ICT projects.

In the above style, the definition of a **vision** or desired state of a business with technology is an essential stage for planning. A vision should contribute to the commitment of different people around an organisation and create a common culture concerned with the use of information to gain competitive advantage (Walsham and Han, 1991; Reponen, 1992; Earl, 1998; Salmela et al, 2000). This vision should state how an information-based organisation is going to perform in the future. A vision is the result of combining existing and new initiatives. Such a vision should define the *core concern* of future business, and give degrees of flexibility for new initiatives to emerge and be implemented (Mintzberg and Waters, 1985; Quinn, 1988). This vision can be refined gradually in time by testing ways of achieving it (Mintzberg, 1994; Earl, 1998).

To define a vision of an organisation as operating adequately in the future, there is an important emphasis on analysing possibilities for action in the future as well as reflecting on the present stage. Subjects for analysis include future trends in business and technology, threats and opportunities in a specific business sector, socio-economic and political factors of influence. At the internal level, a business is analysed in terms of its strategies, processes, procedures and existing technology (Quinn, 1988; García, 1993; Hammer and Champy, 1995; Andreu et al, 1996; Fundacion_Social, 1996; Henderson and Venkatraman, 1999). The product of the analysis is as rich as possible to get a picture of how an organisation is currently performing and how it could perform in its environment (with information) due to the influence of internal and external factors (Ackoff, 1981). These factors can be those mentioned in the section 3.2 of this chapter.

Although in this emerging style of planning the main focus of ICTP still seems to be the provision of competitive advantage to organisations via the use of information, making of ICT strategies seems to demand the consideration of new issues. These issues (cost/benefit analysis of ICT products and services, relationships with ICT providers, data storage planning, control of access to data, value assigned to current and potential applications, technologies available, etc) are related to the use of information and ICT through time (Earl, 1993 and 1998; Galvis, 1995). It is argued that ICT planning should then provide support for these different concerns (García, 1993; Earl, 1993; Galvis, 1995). Some of these issues could be seen more related to the *relations* between people, including relations that arise due to the use of information or to the use of particular technologies than to merely technical aspects[14].

The above can be also seen in the use of approaches. Regarding how to address emerging concerns in planning, Earl (1987 and 1993) has suggested that in developing a vision in ICTP it may be necessary to combine different strategies to address emerging issues. Earl suggests acknowledging the need to have *different strategies for different issues of concern*. Earl says that as ICTP evolves,

> different approaches may be required in different situations over time...(Earl, 1987, p. 168)...Where plans were implemented, other *concerns* arose, including technical quality, the time and cost involved, or the lack of benefits realised (Earl, 1993, p. 4, my italics).

It follows that even in the development of an information-based strategy which, aims to guarantee competitiveness to organisations, there are different issues of concern emerging. These are related to how people interact with information, and how certain relationships (e.g. with ICT providers) need to be developed and maintained. To do this, approaches for ICTP could consider not only management of information but also the context of relationships where strategy is developed, and the concerns that emerge through time.

[14] Clarke and Lehaney (1997c) classify some of the issues mentioned as related to the 'how' of IS strategy and argue that these are more IT related issues. It seems to me that these issues could be also subjected to criticism regarding how is that relations between people and their concerns will affect and be affected by these issues.

3.4 Participation of People in the Making of ICTP

In the practice of ICTP, having an information-based vision and selecting the best way to achieve it (bearing in mind the context of an organisation) seem to be important considerations for the making of strategies. As the vision needs to be created, shared, maintained and put in practice, one of the means that has been used to keep it in people's minds is to make an ICTP process a *formal and participative exercise* (Porter and Parsons, 1983; Reponen, 1992; García, 1993; Ward et al, 1996). The process of ICTP becomes a project in an organisation, aiming at obtaining a future vision shared with ICT, and a set of strategies and action plans to develop it.

In the process of defining a vision, strategies and action plans, participation of different hierarchical levels of an organisation is essential to ensure full commitment of individuals with initiatives. Involvement of people (in the definition, and implementation of plans) has been seen as a condition for the success of strategies (Walsham and Han, 1991; Reponen, 1992; Salmela et al, 2000). This involvement will also facilitate continuous assessment of current strategies and identification of new opportunities in which ICTs can provide competitive-advantage (Quinn et al, 1988; Reponen, 1992; Earl, 1999).

Reponen (1992) has argued that what is needed to ensure successful adoption of ICT in organisations is to foster the creation of a culture of information as a strategic resource. This requires that people develop specific abilities in the planning, implementation and use of technology (Reponen, 1992; Earl, 1983, 1993, 1999). Individuals are said to be the agents of change in organisations, those who will carry out the development of plans and those who will be the future users of implemented technology. About individuals, McFarlan and McKenney (1983) have said:

> users (of ICTs) ought to be aware of the level of their staff investment that is required in the short and long runs to ensure (information) systems success and be willing to commit this level of their staff resources. Users should fully participate in the development of a support-plan for the systems they will use (pp. 98-99).

Regarding participation, Walsham and Waema (1994) and Salmela et al (2000) argue that a process of ICTP in which people are involved and to which they are committed contributes to a successful implementation of ICT projects. In describing cases studies in ICTP they show that participation of people was essential to guarantee delivery of results through time and the continuity of initiatives. As new conditions appeared in the environment of the organisation studied, new views on how the new ICTP project appeared and made it necessary to change periodically. The participation of senior management was needed to keep the ICTP project running.

Although in the above examples individuals were involved, participation of people seems to be limited in scope and centred in a particular concern, that of producing and maintaining successful information-based plans and initiatives. Participation in ICTP means that individuals in organisations are asked to contribute with their ideas and creativity to elaborate this information-based vision of a business (Reponen, 1992), which should embed the use of information technology (Earl, 1999). Individuals' knowledge and ideas are used to develop feasible strategies considering their experience with current processes and their imagination on how they could be improved with ICT (Reponen, 1992; Hammer and Champy, 1995). This is seen as enough to guarantee commitment and success.

Despite a degree of consideration of people-related issues in the making of ICTP, so far it seems that people seem to be involved in ICTP only partially. Existing relationships between individuals in organisations are seen as important as long as they become good supporters in the implementation of proposed plans and guarantee success. Hierarchies are considered important to ensure commitment. Also important is the need to get support from senior management or impose autocratic styles of management.

What the traditional way of involving people in ICTP is not taking into consideration is that there are webs of relationships between people that may become inhibitors or enablers of implementation of strategies; individuals may or may not share concerns presented in a strategy. People may have *other concerns* in mind; these concerns might appear outside the formal process of defining an information-based vision but might contribute to the use (or lack of it) of ICT in organisations.

It has been argued that in a process like ICTP there are emerging concerns. They should be recognised and dealt with in the process of planning. Current developments in the realm of strategic planning show that emerging concerns in organisations are related precisely to individuals and their values. This will be shown in the next section.

3.5 'Informality' in Planning: Emerging Concerns and Values

Coming from the field of strategic planning, Mintzberg (1994) has criticised formal approaches in the making of strategy. For him, they tend to rely too heavily on methods and techniques of analysis as a way of determining what a group of people is going to do about their future. However there is a degree of uncertainty in the future that cannot be managed with endless debate on hard data. Too much emphasis on prediction will convert strategy into a process of numbers planning. How a strategy evolves involves a continuous process of thinking and acting. This means that: "people act in order to think, and they think in order to act" (Mintzberg, 1994, p. 286).

Hence, a process of strategy definition is not necessarily related to a set of goals, plans or projects previously stated. According to Mintzberg (1994), the traditional analysis done to identify forces in the environment, strengths, weaknesses or opportunities considers them as unmoveable (objective) elements that may constrain definition of action instead of opening paths for areas of experimentation for continuous thinking and doing. It may be necessary to have some boundaries of action; however they need to be flexible enough to accommodate plans to emerging initiatives not intentionally defined in planning, but in action. Planners and managers need to be involved in action, taking part in the web of informal conversations that exist in organisations, and identify collective action apart from collective intention.

It can be said that in strategy making, managers and planners also need to be flexible enough to include emerging concerns of people, and make sense of these concerns in action plans. Planning should be a flexible process of inclusion of concerns. In a similar way but with different words, Mintzberg and Waters (1985) have recognised this when they say about strategy that: "...managing requires a light deft touch to direct in order to realise intentions, while at the same time responding to an unfolding pattern of action" (p. 271). These concerns vary with time, as

organisations adapt to factors like changes in lifestyles, new regulations, demographics, geopolitics and technology (Hamel and Prahalad, 1995).

Campbell (2000) describes the essence of strategy making as being driven by the continuous definition of why an organisation exists, and by people who are involved in strategy making. These aspects constitute shared understandings that people agree with; as such, they allow discovering new ways of providing benefits to stakeholders. These shared aspects (values) may even contribute to shift 'umbrella' strategies to move beyond what is formally accepted to embrace individually emergent efforts into collective action plans (Mintzberg and Waters, 1985).

For Campbell and Alexander (1997), values determine strategies to be chosen for organisations. Values and culture may also influence the choice of quantitative and qualitative (or of formal or informal) methods used in the making of a strategy or in the taking of strategic decisions.

Mair (1999) uses the example of an organisation like the Honda motor company to show that values of commitment with long-term outcomes and continuous innovation have driven this company at different times in its projects. Honda's founders share these values as part of their own culture. In explaining the success of the Honda motor company, Mair argues that strategists have seen partial pictures of this organisation to justify their own approaches and deny the validity of others. Mair also says a strategy like Honda's can also be the result of a value-driven effort in this organisation that drives it on 'a specific route to innovation' (Mair, 1999, p. 39). These values helped to reconcile apparently opposite strategies.

Hence, in the making of a strategy there should be a shared set of concerns of what to do about situations. Planning approaches should be flexible enough to provide room for emerging concerns, taking into account the values that people share in organisations. Although the examples given seem to focus on the existence of shared concerns and values, it is also individuals who influence the definition of strategies with their own concerns. As Mintzberg and Waters (1985) and Quinn (1988) argue, some successful organisations are those which are able to 'push out' some of the generic strategies to accommodate strategies that individuals alone have defined and implemented. In other cases, it is individuals who define organisational visions or strategies for others (Mitzberg and Waters, 1985; Quinn, 1988). In any

case, ideas have come from individuals, who develop their own concerns in action and in that way inspire others (including senior managers) to follow them.

In a broader view of strategy, there seems to be a dynamic interaction between individuals and organisations, which is developed through time as different concerns emerge and are transformed in action. Planning should be considered as a combination of formal exercises and emerging concerns. The need to account for pushing out some organisational strategies and give room to individual concerns seems to point to a different degree of involvement of people in planning. It appears that people need to feel involved with their own concerns in planning, and receive support for action.

3.6 ICTP as Driven by Concerns

With the above ideas in mind, an alternative view of strategy could be proposed to enrich one's view on ICTP. Instead of being a formal process concerned only with competitive advantage (or information), strategy is related to human concerns and values. This would mean also considering strategic planning as a process in which different concerns emerge and are addressed. If this idea is accepted, a condition for the making of strategy and/or ICTP would be first inquiring about some of the concerns or assumptions taken for granted about why an organisation is concerned with existence in the first place.

A process like ICTP should provide room to deal with concerns coming from the context where it is being developed. It should be flexible to respond to emerging concerns (organisational, individual), and to relate strategies to values that individuals in organisations share or want to foster.

Although a view of strategy as being value-driven may be in principle focused on some core concerns of organisations (perhaps the need of getting advantage or survival), a possibility of integrating various concerns can be developed in a process of strategic thinking. In this possibility, emphasis on only one dominant concern, as it has been done in strategic planning and in ICTP should be avoided.

By giving the possibility of addressing different issues, values and concerns of people in ICTP, it has been also argued that different approaches may be appropriate for

tackling different situations and to drive a process like ICT by the things that people consider important. Approaches and methods should recognise the existence and adequacy of different ones to address particular situations. Their choice should depend on the conditions of organisations and their environments.

If the case is to allow that emerging concerns issues and values be taken into account in planning, participation of people in ICTP should not be focused only[15] on the concern with information or producing ICTs-based plans. It may be necessary also to consider the purpose and scope of participation of individuals in ICTP in relation to the emergence of different concerns of action in a particular context of intervention.

Bearing in mind the above considerations, the next section describes some approaches that have been used to understand the process of ICTP in organisations using Structuration theory (Giddens, 1979, 1984). This allows a broader understanding of the context in which ICTP it is developed.

3.7 Approaches that Deal With the Human Context of ICTP: The Use of Structuration Theory.

To begin with, the basic elements of the theory of Structuration theory are presented. Then two approaches in the realm of ICTP are reviewed.

3.7.1. Structuration theory

Giddens (1979, 1984, 1990, and 1991) has provided the theory of Structuration to explain the nature of changes in modern societies, taking into account their history and the dynamics to which they are subjected. It is also aimed at providing explanations for some of the philosophical questions of human kind about the nature of human doing and human interacting.

[15] I am not arguing that technology should not be used, instead if people consider that it helps to address certain concerns in action then technology plans can be defined. I will be arguing later in this chapter against approaches that consider technology as an inevitable resource to implement strategies.

Giddens proposes to transform the existing dual*ism* between competing sociological theories into a dual*ity*. In terms of explanations about society, duality means that neither the existence of social forces nor the possibility of human agency determines the course of action in societies entirely. Instead, it is the interplay of both that produces and reproduces societies, and allows for their integration across frameworks of time and space. Also, Giddens aims to integrate different concepts that have been made in society about power, communication and human interaction into a single framework.

For Giddens, the basic domain of study is the *social practices* (points of articulation between actors and social structures[16]), ordered across space and time as constituting societies (Giddens, 1984). The dual*ity* introduced by his theory helps to integrate in a single framework the different explanations of these practices, conceding equal importance to individuals, influencing factors and groups.

Some essential elements of the theory of Structuration will be presented now. These are the notions of agency, structure and the interplay between them.

3.7.1.1 Agency

In his theory Giddens puts human action in a context, which influences it; at the same time, human action influences the context where it is performed. This means that society and the practices that constitute them are constantly produced and reproduced in human actions. On the other hand, any human action goes beyond the intentions of those who perform it and affects society as a whole. Action occurs within a social context and the series of interactions with others becomes the medium but also the outcome of human agency.

Giddens proposes to consider some concepts that help one to understand the implications of agency. Humans are *knowledgeable* subjects. It means that they possess stocks of knowledge about social practices that they can refer to when interacting. Knowledgeability makes them (us) also able to reflect continuously on the actions and also the *setting* of these actions, in such a way that this reflection involves others and also the monitoring of social and physical aspects of the context in which they move (Giddens, 1984).

[16] This notion will be explained later in the chapter.

However, humans are not able to grasp the motivations for their actions entirely. Nor are they able to foresee some of the conditions under which their actions have unintended consequences. In this respect, agency has a degree of uncertainty, and action has implications that go beyond the mere intentions of those who perform them. The above makes agency described as not necessarily related to an intention. Agency "concerns events of which an individual is the perpetrator, in the sense that the individual could, at any phase in a given sequence of conduct, have acted differently" (Giddens, 1984, p. 9). Although based on human action, agency is immersed in a flow of events in a context. Giddens argues that in human agency there are motivations for action, and intentions to produce particular outcomes. But this needs to be complemented with an understanding of the impacts that any action has in society at the level of unintended consequences of action.

To explain this in more detail, Giddens conceives a distinction in the definition of human consciousness. There are two types of consciousness: the practical and the discursive. The former refers to "tacit knowledge that is skilfully applied in the enactment of courses of conduct, but which the actor is not able to formulate discursively" (Giddens, 1979, p. 75). The latter refers to those stocks of knowledge which humans can describe and are aware of in language.

With the above ideas in mind, Giddens is able to situate phenomena of agency in a broader context from that of individual human action. Although he prefers to leave intentionality of actions at the level of human beings, he claims that we as individuals are able to interact in many different ways. Society as a whole achieves a degree of integration and cohesion via human interaction; the degree of interaction can transcend different instances of time and space. Knowledgeability and the ability of humans to monitor human-action allow individuals to interact in different ways. For Giddens it is individuals, rather than society which can be studied in terms of teleological explanations[17]. How is that society then achieves a degree of patterning, order or stability in the relations between humans?

[17] For Giddens "any explanation of social reproduction which imputes teleology to social systems must be declared invalid...social systems have no purposes, reasons or needs whatsoever; only human individuals do so" (1979, p. 7).

3.7.1.2 Structure

To provide an answer to the above question, Giddens argues that there is a degree of influence in human agency; it is framed within *structure(s)*. A structure is a set of rules and resources that specify 'how to go on' in human interaction. A structure is reproduced in interaction that constitutes social practices, hence it can be said to have 'virtual existence' (Giddens, 1984). Structures exist "only in instantiations in such practices and as memory traces orienting the conduct of knowledgeable agents" (Giddens, 1984, p. 17). The existence of structures makes agency bounded within social practices, which exhibit 'structural properties' in interaction. It is through the reproduction or production of structures that social practices are maintained and modified.

A structure becomes the medium and the outcome of social interaction, enabler and inhibitor of human agency. This is central to the idea of duality proposed by Giddens (1984 and 1990). As traces in the mind, a structure is 'invoked' by individuals (implicitly or explicitly) when they deal with each other. In interaction, actors *monitor* the flow of their activities and the setting (framing) of these activities, allowing them to maintain or modify the course of their interactions and hence of society as a whole by contributing to creating or re-creating structures which make conditions of future action possible.

Giddens argues that at any moment, knowledgeable human beings can decide to 'do otherwise' from what they know they are expected to do in the reproduction of a structure. This means "being able to intervene in the world or to refrain from such intervention, with the effect of influencing a specific process or state of affairs" (Giddens, 1984, p. 14). However, as actions have undesired consequences Giddens would argue that any human action (intended or unintended to foster change) brings with it the seeds of change (Giddens, 1984).

The structures proposed by Giddens to guide human interaction are intertwined. They refer specifically to the following types (Giddens, 1979 and 1984):

- Signification: This consists of stocks of knowledge that human beings use in their interaction to create and re-create meaning with others.
- Domination: This is facilities that enable human beings to allocate material and human resources, and in this way human beings produce or reproduce schemes of control and authority over others.
- Legitimisation: This is the norms and standards on which individuals rely to give validity to their actions and in the interaction they are maintained or changed.

Each type of structure has two 'modes' or modalities that can be distinguished. The first one refers to a phenomenon 'recognised' within society by groups of individuals as a practice. The other type is referred to a phenomenon that is 'known' at the level of one-to-one interaction between individuals. A human interaction is distinguished as such by those who take part and also practice (from the stock of knowledge) which refers to a structure(s) in society. In this way, a duality in interaction is achieved and maintained by individuals via communication with others (Giddens, 1984, p. 29). The dynamics between interaction, modalities and structures are best seen in the following diagram:

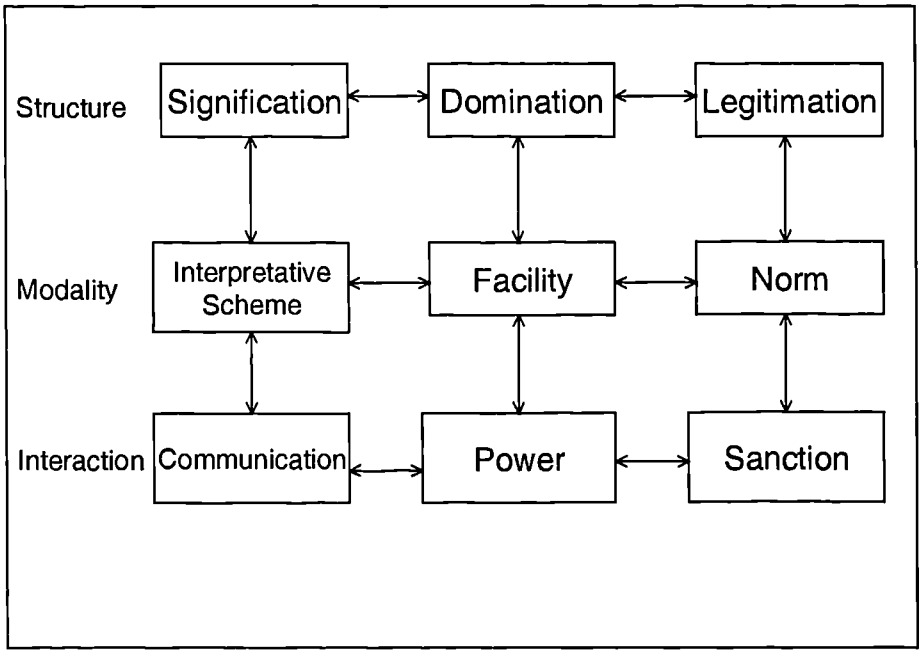

Figure 3.1: Structures in societies (Adapted from Giddens, 1984, p. 29).

According to Giddens, structures can be hierarchical. The most deeply embedded structural properties are called structural principles (Giddens, 1984). To those practices that reproduce structures of interaction through large spans of time, Giddens applies the name of *institutions*. They become stabilised across time and space, in "deeply sedimented time-space relations" (Giddens, 1979, p. 110).

Human interactions help to produce or reproduce the types of structure mentioned above. They may refer simultaneously to the actualisation or production of structures of signification, domination or legitimation. For example, the use of power resources in interaction — with the purpose of achieving an outcome of having a meaning accepted — may be subject to 'accountability' by individuals who draw upon norms and sanctions. They may be aware of the consequences of their actions in the "actualisation of *rights* and the enactment of *obligations*" (Giddens, 1979, p. 86) or others.

3.7.1.3 The nature of rules and resources in Structuration theory

As has been said, rules and resources compose structures. The former refer to 'ad hoc' considerations that are taken into account in interaction and are applied in the enactment or reproduction of social practices (Giddens, 1984). Rules relate to the constitution of meanings or the sanctioning of modes of social conduct. Some of them are said to be "probably particularly significant...those involved in the sustaining of ontological security" (Giddens, 1984, p. 23). Due to their duality (created and recreated), rules are not entirely uttered in language, as any discursive formulation of them is already an interpretation of them.

Resources are "modes whereby transformative relations are actually incorporated into the production and reproduction of social practices" (Giddens, 1984, pp. 17-18). Resources can be of allocation (drawing upon commands over objects) or authorisation (drawing on relations of command over people). Resources are media through which interaction produces and reproduces social practices, and also the result of these practices, as resources can be distinguished as important for future interactions.

Both rules and resources as constituting structures can be seen as exhibiting structural properties rather than being absent or present in *every* interaction. Giddens is clear about this, taking into account the need of human presence. He says: "it is not accurate to see the structural properties of social systems as 'social products' because this tends to imply that pre-constituted actors somehow come together to create them" (Giddens, 1984, p. 26). By this one can see that it is actors who draw upon certain resources and rules to frame their agency, with the possibility of creating or recreating structures of interaction in societies. Both rules and resources have to be invoked by actors to acquire the character of structuring properties in interaction. This will be taken into consideration when reviewing approaches that use Structuration theory in the realm of ICTP.

Structuration theory also brings a broader sense of awareness in relation to understandings of human interaction. Interaction might contribute to re-producing or producing structures as relational schemes between individuals. The elements that these structures reproduce are contingent on action. Even elements like rules and resources depend on human interaction to claim existence. This consideration as well as the awareness of the consequences of actions will inform a review of the following approaches that use Structuration theory for ICTP research.

3.8 The Use of Structuration for ICT Research

Structuration theory has been used in the realm of ICT and also to inform the understanding and management of ICTP. In this section two approaches will be examined:

1. An approach that argues for the duality of technology as a medium and outcome of organisational dynamics in society (Orlikowski, 1992; Orlikowski and Gash, 1994).
2. An interpretivist approach, which uses Structuration theory to 'explain' the dynamics of the definition, use and implementation of technology in organisations (Walsham and Han, 1991; Walsham, 1993, 1998; Walsham and Waema, 1994).

3.8.1 The duality of technology

The work of Orlikowski (1992) provides an answer to the existing debate on the conception of technology and its determinism or subjectivism. This debate gathers views like that of Zuboff (1988) who argues for the shaping of social relations by the use of technology. Within this debate, there are opposite views like the one developed by Goulet (1977), Pacey (1977), Borgmann (1984 and 1992) and Beeson (2000). They are more in favour of social relationships between individuals as shaping information technology initiatives, products and services.

The debate gives rise to questions like: is technology the product of human agency, or on the other hand is technology an objective force, which embraces predefined beliefs, norms and values?

Orlikowski's answer to the above questions is that technology (she refers to information technology) is assumed to be *enacted by human agency as well as shaping it.* In Orlikowski's words:

> that is, technology embodies and hence is an instantiation of some of the rules and resources constituting the structure of an organisation...Technology is the product of human action, while it also assumes structural properties (Orlikowski, 1992, pp. 405-406).

According to Orlikowski, technology, which was once created by human agents, becomes 'institutionalised' in organisations and embraces some of their norms and rules. This embodiment of properties in technology influences the agency of individuals in organisations and even institutional properties. At the same time, agents have a degree of choice when receiving technology given the technical flexibility that technology offers, or their decision to go against the norms and rules stated by it (doing otherwise)[18] (Orlikowski, 1992).

Given the dynamics of the environment of an organisation, new institutional properties can again influence agency, which may create or recreate technology as part of the institutional development. The process can begin again. The dynamics

[18] Orlikowski (1992) mentions another property of technology apart from its duality: its interpretative flexibility. It means that different agents may use the same technology differently; with new advances (and now she seems to consider software and hardware technology), it offers also new possibilities for adaptation to users and their needs.

between institutional properties, agents and technology can be shown in the following figure:

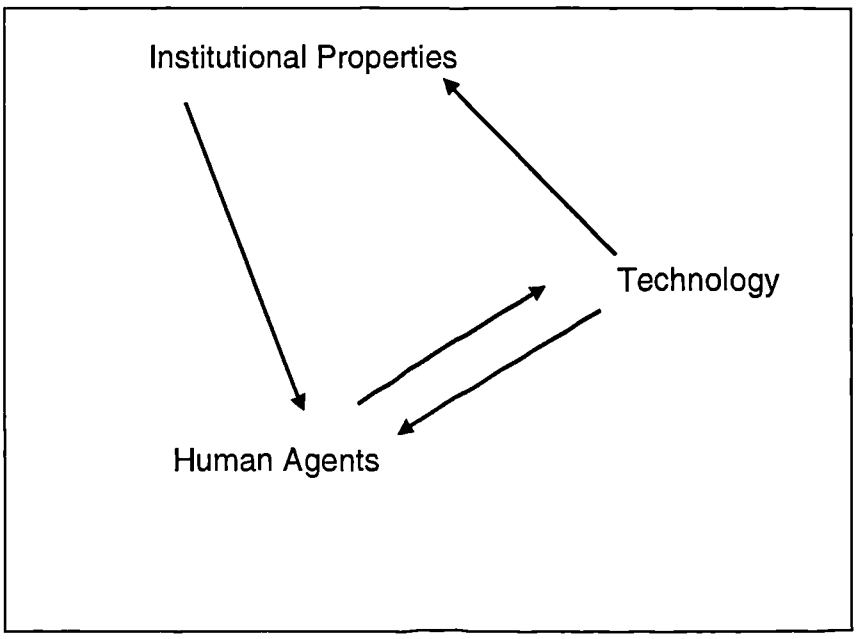

Figure 3.2: The duality of technology (Adapted from Orlikowski, 1992).

As seen in the diagram, once created by human agents, technology plays a mediating role in the interaction of individuals and even shapes institutional properties. With time it becomes a 'black box', which exerts influence towards agents and institutional properties. As such, it may be considered as a material entity, which has an independent existence from human agents.

Orlikowski's account is an interesting description that concedes importance to technology as influencing (enabling and constraining) future initiatives of action. This may prove useful in broadening the understanding of a context in which technology is used, considering the time dimension. For a researcher, this could help in making sense of the actual situation within which processes like ICTP occur, and the notion of technology that could exist in the 'minds' of people after they have developed, used or created it.

Nevertheless, a point of caution has to be made here. From the diagram one could conceive of technology as inevitably present in interaction once it has been created; it is the only element which has reciprocal relationships! This needs to be considered in the light of Giddens' notion of a resource which has a 'virtual' existence, and is

distinguished as such only in the minds of individuals when invoked in interaction. The place of technology in the diagram seems to be overemphasised. As Jones (1998) has said:

> in structurational terms, however, technology is a minor aspect of social practice, if indeed it is considered at all. (Jones, 1998, p. 128).

Moreover, from the above diagram one would point out that human agency or structures acquire meaning only when influencing or being influenced by the use of technology. There is no direct connection between agency and institutional properties for example. That would mean that in Orlikowski's model, for any concern in action to be distinguished as important in any process (here the focus seems to be only in change processes), it will have to be related to technology. The understanding of agency and structure seems to be narrowed in Orlikowski's account to account for those interactions that have to do with technology.

Orlikowski's account, although providing awareness of the conditions that make the use of technology possible in terms of structures of interaction, also establishes limits and undermines conceptions about interaction as producing wider impacts in society apart from the use or implementation of information technology. There is also the risk of conceiving of information technology as an objective resource, which is instantiated in interaction regardless of the nature of interaction. Also, there is the risk of attributing to individual mindsets or 'structures' about technology (such technology frames in the account of Orlikowski and Gash, 1994) which they might not possess. These two elements of attribution to resources and to agent could contradict the notion of resources and agency provided originally by Giddens (Jones, 1998), in which these elements are contingent to interaction.

The second approach to the use of Structuration in the realm of ICT reviewed is the interpretivism in information systems research. This approach focuses mainly in analysing the role of Information Systems (IS) in organisations as being immersed in practices that contribute to reinforce or change social structures of signification, domination and legitimation.

3.8.2 Interpreting information systems in organisations

Walsham (1993a and 1995) has proposed a stance that he regards as interpretivist to understand information systems (IS) in organisations. This stance intends to validate a theory derived from case studies of use of information systems and technology; it also aims to enrich the theory including issues emerging from this use (Walsham and Han, 1991; Walsham, 1993a, 1995 and 1998).

Walsham sympathises with the ideas of Structuration as they provide a framework for the analysis of different levels of human interaction that affect and are affected by the practices of IS activities like ICTP. Practitioners are able to 'interpret' situations using Structuration theory, and the scope of this interpretation might be diverse. Structuration is used by Walsham to give guidance on different aspects that should be considered when dealing with empirical studies or intervention in organisations. It also illuminates the outcomes of interpretations about situations that are related to the use of technology (Walsham, 1995 and 1998).

For the case of information systems, Walsham proposes an analytical stance, which is aimed at

> ...producing an understanding of the *context* of the information system and the process whereby the information system influences and is influenced by its context...context is concerned with the multilevel identification of the various systems and structures within which the information system is embedded (Walsham, 1995, p. 5).

In the above stance, the *context* is characterised by different forces affecting the use or implementation of an IS in an organisation. The *content* of a process is conceived of as a phenomenon of change in which different tensions, interests and forces (internal and external) are revealed as affecting the use or implementation of an IS. Between these two elements there is a relationship, as processes related to use or implementation of an IS are constrained by existing contexts, but at the same time are involved in shaping these contexts.

In the process of change, Walsham is also aware of the existence of some situations at any stage in practice following the interpretivist stance, in which a practitioner will have inevitably to deal with issues that demand his/her engagement with or exclusion from processes like ICTP. In those he follows the ideas of interpretivism in which a

practitioner should document and justify his/her choices fully (Walsham 1993a, 1993b and 1995). However, this justification becomes difficult as a practitioner should not strive to look for self-aggrandisement or over-modesty (Walsham, 1995).

Walsham proposes different levels of analysis to conduct an inquiry in information systems definition or implementation. These levels are presented as follows.

3.8.2.1 The analysis of context and process of IS

Walsham's interpretative analysis of information systems practice in organisation begins with a general description of levels of the context of an organisation. It includes forces affecting the nature of decisions, like sectorial, national or international trends. These forces are present in the minds of people when they interact. Also the context is characterised by a set of social relations that exist among people and which seem to shape the meaning of changes. They might include the different social settings in which an individual is immersed (city, nation state, home) The deeper understanding of this subtlety affecting the way decisions are made, the richer the analysis becomes.

The process of change is seen from two aspects: first, an analysis of its content in terms of the intentions of decision takers about it, and planned strategies to change the nature of an organisation (products, services, organisational structures); and second, the dynamics of the 'social system' in which the change takes place is suggested.

In particular, Walsham defines two perspectives from which to look within an organisation: cultural and political. The culture is a 'filter' applied by different groups to situations in order to reinforce or change existing values and norms and therefore keep a separate identity from others. "Culture is an active, living phenomenon through which people create and re-create the worlds in which they live" (Walsham, 1993a, pp. 43-44). The political perspective considers organisations a continuous struggle of interests, some of them without a fair moral purpose, others as a manifestation of a dialectic between the need for autonomy and centralised control. For Walsham, organisations are "loose networks of people with divergent interests...Morality is inevitably involved in the exercise of power, and this includes the negative possibilities for domination, although this is never total" (Walsham, 1993a, p. 47). In the interplay between culture and politics there is however room for

human agency as any organisational system carries with it the seed of its own change (Walsham, 1993a).

For practitioners, analysis in organisations should make them aware of their role in contributing to the enacting of collective meaning. Practitioners may decide to contribute to the re-creation of meanings, or to the emancipation of different groups of people, with the corresponding impacts in organisational settings of culture and power (Walsham, 1993a).

3.8.2.2 Mutual influence between ISs and contexts?

In Walsham's account, the emphasis put on analysing different aspects of the context seems to leave little space for interpretations about a situation other than the analyst's. Elements of analysis provide an understanding of issues surrounding definition or use of information systems (ISs). These issues seem to be those related to what an analyst perceives is affecting ISs' definition or use. Other accounts (and therefore other concerns emerging from other individuals involved in organisations) might not be taken into consideration.

The analysis considers various aspects that affect the practice of IS. At *different* levels, these aspects are identified. Although Walsham argues for a mutual influence between ISs and contexts, the influence of ISs on them at various levels is not clear. For example, how does IS definition, implementation or use affect the broader national contexts or relations at the level of governments or states? Is not this mutual influence between ISs and contexts attributing too much impact to IS practice in relations between people? What if some groups of people do not use ISs at all? How will be they affected in the context of a nation?

In Structuration theory, it has been said structures are contingent to interaction between individuals, and influence of interaction is not predictable (Giddens, 1979, 1984, Jones, 1998). Even if the influence of an IS in some contexts can be justified, there could be different views about this influence that are necessary to elicit, particularly if the contexts involve more than a group of individuals (for example a nation). Again, the nature of ISs seems to conceive them as an objective force with limitless influence in the relations between people.
Furthermore, the role that analysts or practitioners might play seems not to be supported by any ground more than by the contribution to the enacting of meaning.

An analyst might be or not be part of a situation, as interpretation can take place after events have occurred. In relation to ethical aspects that have arisen, the interpretivist character of the analysis does not make fully clear for an analyst how to proceed when encountering situations of conflicts between different views. Just a 'full' justification of choices is required for analysis, and possibilities for choice are limited to certain roles that an analyst can play in organisations[19] or certain issues that are considered 'ethical' in information management like surveillance, control, quality of work, power relations (Walsham, 1993a). In a planning exercise in which different contexts are considered (national, sectorial, etc) there could be more issues of concern which need to be identified and dealt with. These issues might not be related to the use of information.

Moreover and due to the above limitation, in Walsham's account the critique of moral stances adopted by analysts or others succumbs to the enacting of meaning or interpretation. In the realm of ICTP, Walsham and Waema (1994) state that practitioners can contribute to the process of enacting of meaning in organisations:

> IS strategists can help create new meanings and understandings within and between subcultures...compatible with the overall vision for change and with the enactments of other subcultures (Walsham and Waema, 1994, p. 163).

From the description of a case study given by Walsham and Waema (1994) involving ICTP and Structuration theory, one gets the feeling that what is needed to make ICTP work is to is to have a good leader with a clear information-based view of an organisation. This leader should be able to convince others of the value of this vision, and drawing on the existence of different norms and values as well as of a set of power relations. The leader also should be autocratic enough to avoid any degree of participation that might lead to the implementation being delayed or questioned. In this regard, practitioners have little influence in the course of the case. The method used to understand the case study (interviews) did not give much room to play a moral role or to question the moral grounds of the actions developed by this autocratic leader.

[19] Although there are different roles provided for practitioners in Walsham (1993a,b and 1996), the choices are limited. An analyst can play the role of technical expert, enactor of meaning, or moral agent (Walsham, 1993a). About the role of a moral agent, practitioners are encouraged to think that there are two options: either aligning aside the workers or supporting the emancipation of all parties. Walsham is not very clear on what he means by emancipation.

In short, although in Walsham's account the context of ICTP is considered essential to understand how it might affect the process of planning, focus seems to be arriving on a rich description of the context and of IS practice as a process of meaning enacting (re-enacting), without being more critical about the situation. Criticism is scarce of the role performed by practitioners either in intervention or interpretation activities, also in relation to the ethical concerns that have arisen.

It can be said now that approaches that have used Structuration theory to understand processes like ICTP have relied too much on the influence of ICTs (including information systems) on the context where they are implemented. This emphasis seems to assume that technology is a resource *per-se* that shapes relations between people. What has not been taken into account is the existence of different concerns of people (individuals, groups) that could shape the process of planning; practitioners are also part of the context studied. Concerns might not necessarily be related to the use of information or information technology. The role performed by practitioners seems to be limited to enacting meanings with IS-based actions.

For the development of the information society, it seems that approaches that consider information technology in context need to review the current concerns that exist in society coming from people, as well as the impact that any action will have for society as a whole. Technology might or might not be a resource that could support human interaction to address concerns identified. In intervention or interpretation, practitioners need to be more critical of themselves, and situate their role into a situation. Structuration might help in providing insight about the impact of their actions in the processes of enacting or modifying structures of interaction between human beings.

With the above ideas, the conclusions of the chapter are presented.

3.9 Conclusions

This chapter has advanced the discussion on the development of ICTP within an information society. An analysis of approaches for ICTP has been made. The focus

of the analysis has been in organisations, considering the existing literature in two areas: strategic planning and ICTP. A review of the literature in the latter area has been made, considering the influence that this has had in the realm of the former. It has been shown that in strategy making, the need to be driven by the values and concerns of people appears as an important issue. From there it has been argued that a process like ICTP should re-direct existing focus on competition and bear in mind the concerns and values of people as guaranteeing the making and implementation of strategies.

What becomes clear from the use of theories about society to inform ICTP practice is that the concerns, values and issues identified have wider impacts in society. Because of this, it can be argued that practitioners should have more support in this aspect with conceptual and practical tools to tackle issues of concern that emerge in interaction at different levels in society (institutional, group, policy making). This should be addressed, as ICTP in the information society seems to pervade different spheres of life.

In this respect, the need to understand the context of people has been highlighted. Some approaches that have explored this issue have been presented, particularly those using the ideas of Structuration theory applied to the realm of ICTP. The ideas coming from Structuration theory for research in ICTP seem to suggest awareness of aspects like norms, values and concerns with culture and power. They also suggest that practitioners should be aware of the role they play in processes of interaction.

Applications of Structuration theory in the realm of ICTP focus on the influence that people and technology may have in the shaping of human interactions, and also on the influence that contexts have in enabling or constraining human agency. Different aspects of inquiry can contribute to widen understanding of a situation. Structuration proposes awareness of the consequences of actions; this awareness seems to be limited in the use of this theory in the realm of ICTP by assuming an interpretivist stance of enacting meanings. Approaches studied show little guidance in the bringing forth of different issues (including ethical ones) into discussion or action regarding the practice of processes like ICTP. Nor is there considerable insight in relation to the critical role that practitioners might perform in relation to themselves as agents immersed in interactions that reproduce or modify structures in society. In

short, the critique seems to be undermined by the imperative of enacting meanings via IS practice in organisations.

The above considerations point to the need to explore the use of a different approach for the problem of ICT. This is said on the grounds that it is necessary to include different concerns emerging in a particular situation, as ICTP for the information society demands to bear in mind different issues, not necessarily related to technology but to the people that define or use it.

Furthermore, it is necessary to consider more directly the ethical aspects that practitioners have to manage as part of their agency. Agents need to be more critical about themselves and about situations encountered. So far, the approaches examined unveil their existence, but give little guidance on how to proceed. There is the need to enrich this possibility with more ethically informed approaches under the circumstances of different issues and concerns coming into debate.

The next chapter explores the use of systems-thinking and critical systems-thinking approaches for the process of ICTP and derives implications regarding the above issues of inclusion of concerns (ethical concerns are part of this inclusion) discussed in this chapter.

Chapter 4: Systems Approaches for Strategic Information Technology Planning in the Information Society.

4.1 Introduction

Continuing with the exploration of methodologies and approaches for ICTP, this chapter reviews the use of systems thinking and critical systems thinking based approaches. A broad range of literature describes these approaches and their application in various stages of information systems and technology. The applications include: information-requirements definition, information systems design, information-systems-strategy formulation and information systems implementation (Wilson, 1984; Avison and Wood-Harper, 1985; Checkland, 1990; Wood-Harper et al, 1990; Checkland and Scholes, 1990; Bell, 1996, 1997; Ormerod, 1996; Checkland and Holwell, 1998; Linstone, 1999; Lehaney and Clarke, 2000a; Stowell, 2000; Warren, 2000).

In this chapter, the analysis of methodologies highlights some important considerations about three particular elements: the researcher or practitioner, the methodology itself and the context of intervention. By considering them in a strategic view of the information society, it is argued that different concerns about society should be included in a process of ICTP. Researchers should look outside an organisation and promote the raising of different issues that affect a particular society according to the context.

For the use of systems thinking and critical systems thinking approaches in ICTP, the chapter suggests the need to enhance critique in situations in which issues of concern are seen as having wider impacts in society. Critique is also needed to reflect on the elements mentioned about ICTP: methodologies, the role of researchers and the ethical content of the process.

The chapter is developed as follows. An exploration of soft systems approaches is conducted as well as their application in the realm of ICTP. A critical view of the use of SSM is presented regarding a focus on concern with information. From the previous chapter, the need to open the process of planning to other concerns and to ethical reflections by participants is emphasised. Applications of Critical Systems Thinking (CST) to the realm of ICTP are reviewed. To conclude the chapter, the need for a practitioner to be critical, the methodology used and the context is made. This is taken forward to propose a critical-systems-thinking-based methodological framework to guide intervention in ICTP.

4.2 The Use of Soft Systems Methodology (SSM).

Walsham and Han (1991) have used Structuration theory to inform the practice of ICTP. They have also argued for the possibility of complementing their interpretive stance based with more practice-oriented approaches like Soft Systems Methodology (SSM) that allow practitioners to perform more fully their roles of enactors of meanings in organisations. The use of soft systems thinking approaches is diverse, also in the realm of information systems (Checkland and Holwell, 1998). To begin its exploration, the basic ideas of SSM are reviewed first.

4.2.1 Soft systems methodology (SSM): Basic tenets

Soft Systems Methodology (SSM) has brought a different understanding of phenomena in organisations (Checkland, 1981 and 1990; Checkland and Scholes, 1990; Checkland and Holwell, 1998). From the traditional efforts of organisational science, which considered organisations as 'static goal-seeking' oriented, i.e. pursuing static goals, SSM proposes a shift. Instead, organisations can be considered as *purposeful* systems in which people create and recreate relationships continuously with others. Hence purposes or goals of people change continuously. This view is derived from a different understanding of social reality as depending on *meaning attributed to situations in reality.* Reality is constructed inter-subjectively by individuals in interaction. Appreciations of participants act as filters on what is considered relevant and meaningful for action in reality, and also change in interaction with others.

The purpose of an inquiring process in organisations based on SSM is to understand how agents in reality *make sense* of the perceived world and how these perceptions change and differ from one person or group to another (Checkland, 1981). This can be done with the help of systems models. As interpretations, systems models can inform intentions which can translate into purposeful action to improve situations perceived as lying somewhere on a scale from 'less than perfect' to 'disastrous' (Checkland and Scholes, 1990, p. 8).

4.2.1.1 Existence of holons in SSM

In the framework that supports SSM, it is argued that people structure the world 'outside'[20] them according to particular and internal Worldviews or sets of values. These ideas also embrace any methodological effort. When individuals talk about 'systems' in the world what they really mean is that they select some relevant aspects of the perceived reality to deal with. These relevant aspects as systems can be characterised as having emergent properties (e.g. synecdochal or having properties that can be attributed to the whole but not to the parts separately), and a level of hierarchy and autonomy. Such systems can be named as *holons* (coming from wholes with properties). A 'Holon' is

> a layered structure and processes of communication and control which in principle enable it (as a system) to survive in a changing environment (Checkland and Scholes, 1990, p. 22).

For Checkland and Scholes (1990), organisations as systems (or sets of subsystems) consist of sets of holons. They can be thought of as accomplishing particular purposes for action. In other words, they embrace meaningful and purposeful action. They exhibit systems properties and they can be used to structure a debate on improvement in a particular situation.

In SSM, the identification of a holon in a situation brings a particular worldview or set of values that makes actions meaningful for those who take part in the activities embraced by the holon. The scope of holons as systems of meaningful action may embrace individuals or groups, even an entire organisation (Checkland, 1981 and

[20] The world outside is the origin of perceptions and the source of systems models, considered either subjective (in the minds of people) or objective (existing out there) (Checkland, 1981).

1990; Checkland and Holwell, 1998). In the latter case, it is assumed that people share a 'person like' notion about an organisation, a set of meanings that is constructed and re-constructed according to a set of standards and norms coming from previous history. People are said to have a particular readiness to perceive an organisation. This readiness changes with time (Checkland and Holwell, 1998).

4.2.1.2 The process of learning of SSM

In soft systems thinking, accounts of reality as composed as wholes are formulated as holons, and these can be set against the perceived world, in order to *learn* about it (Checkland and Scholes, 1990, p. 23). As a methodology SSM promotes learning about a specific situation, particularly to the process of *attribution of meaning* to action in it. In the case of organisations, SSM becomes "a process which learns its way to the meanings which characterise an organisation" (Checkland, 1990, p. 311). According to Checkland (1981 and 1990), Checkland and Scholes (1990) and Checkland and Holwell (1998), traditional approaches to deal with organisations should not focus on engineering solutions for specific goals but rather on contributing to the process of understanding and learning from the systems conceptualised in organisations. Some of the questions that SSM intends to address through an interpretation of social reality in organisations involve (Checkland and Holwell, 1998):

- How is it that a specific group of people construes their world?
- What does it mean to improve in a specific context?
- What can be considered problematic in a specific context?

The framework stated by SSM describes some elements that foster continuous learning and understanding about situations of reality: first, a framework (F) as a set of assumptions about what constitutes relevant knowledge about a situation researched; second, a methodology (M), which brings the ideas of the framework into practice; and third, an area of concern (A) in which researchers are immersed in the process of making sense of action with people involved. The process of learning takes place when actions developed conduce to a better understanding of the area of concern (A); the framework (F) and the methodology used (M).

In a process of inquiry using SSM, researchers are required to be involved in the problem situation (A), with a readiness to use the experience as a research object,

from they can learn some lessons to modify the existing framework (F) and methodology (M) (Checkland and Scholes, 1990). It is by developing actions and reviewing existing perceptions about a situation that learning (and moving between F, A and M) is said to occur (Checkland, 1981).

The interplay between the different elements in a process of continuous learning can be summarised in the following diagram:

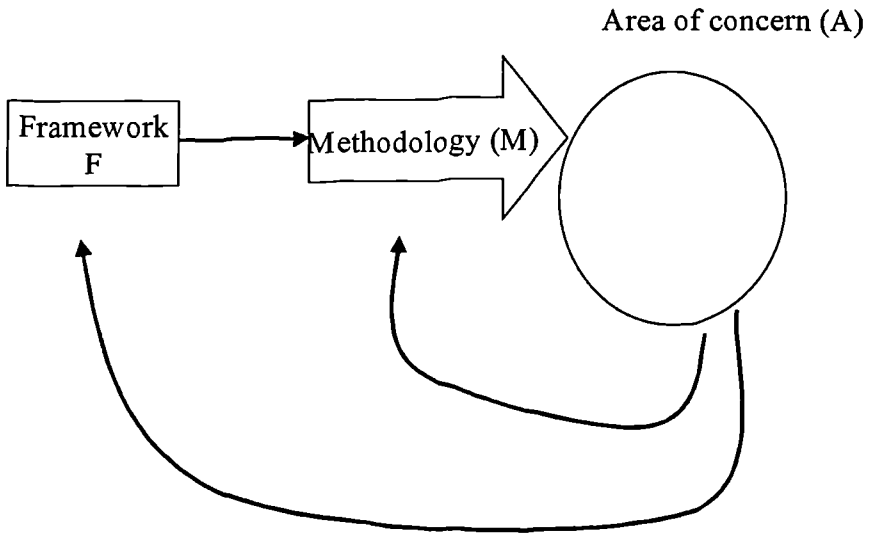

Figure 4.1. The process of Learning in SSM (Adapted from Checkland and Holwell, 1998, p. 24).

4.2.1.3 Accommodation of interests

When using SSM, reality is perceived in terms of purposeful systems linked to Worldviews. As people's understandings about a situation evolve through time, there may be the possibility of encountering different views in the process of learning. To address the possible conflict of views between individuals about a situation, in SSM it is argued that through learning people can achieve a degree of *accommodation* between different interests in their construction of the social reality they live (Checkland, 1981; Checkland and Scholes, 1990; Checkland and Holwell, 1998). Accommodations are situations that "...did not satisfy everyone but could be lived with, enabling action to be taken" (Checkland and Holwell, 1998, p. 14). Problems

may still be there, but "subsumed in an accommodation which different parties are prepared to 'go along with' " (Checkland and Holwell, p. 30).

The notion of accommodation seems to encourage those engaged in a situation to find ways of acting with others together towards improving and learning from such situation. Accommodations are considered in some cases essential for the stability of groups involved in situations, and this may be based on some asymmetries of power that are encountered in a context (Checkland and Holwell, 1998). In SSM, a consensus is defined as a specific form of accommodation. As said by Checkland and Holwell (1998),

> occasionally, an overall consensus could be achieved, a consensus being a special case of the more general (and common) notion of reaching accommodations (Checkland and Holwell, 1998, p. 14, original parenthesis).

From the above, it seems that the notion of accommodation pervades the nature of the inquiry of learning about a specific situation with other individuals by using SSM. Although there is a process of learning, the accommodation of interests seems to be a point of reference to guide the learning and move between stages, an agreement on concerns and actions people are ready to along with. Accommodation should lead to stabilisation or agreement in action.

This notion of accommodation seems to affect the attitude of readiness or awareness of researchers towards a situation. Readiness is *agreed*, in principle, as something that enables researchers to carry on with their work in a specific context. For example, in the field of Information systems (IS) Checkland and Holwell (1998) propose that when using SSM, the framework and the role of the researchers in a process should be negotiated in advance with the people taking part in a problem situation. The framework (F) should exist as part of the process of learning. About the role of a researcher they say:

> this is important because there is always some ambiguity in the complex dual role of the researcher; both involved in the action as participant and consciously reflecting upon it to extract useful lessons (Checkland and Holwell, 1998, p. 26).

If accommodation is taken as achieving a degree of inevitable shared action or perception about a situation, there is a risk. The use of SSM could derive in leaving out some concerns or perceptions of analysts and people, to which there might not be agreement, accommodation or action. Although a framework is needed to conduct an inquiry, the need for accommodation should not stop inquiry for the sake of stability or agreed action. Learning should take place not only through acting based on stability. It could also take place by examining situations in which conflict emerges, or there is a diversity of views or concerns about a situation.

Recent developments in SSM (Checkland and Scholes, 1990; Checkland and Holwell, 1998) have made evident the need to explore in more detail the conditions that could influence attribution of meaning, learning, and change of an existing situation. These developments have detailed some elements of analysis that should be considered in the identification of holons by individuals taking part in a problem situation. These elements will be presented in the next section.

4.2.1.4 Streams of inquiry in SSM

Drawing on the initial ideas of SSM (Checkland, 1981), Checkland and Scholes (1990) have refined the process of inquiry by being aware of different aspects that affect the process of attributing meaning to action in social reality[21]. The form of the methodology (M) from the framework composed of F, M and A is now considering two streams of inquiry to account for those who would improve a situation on reality and for possible emergence of conflicts of interests which would find accommodation in one way or another. These streams are the cultural and the logical (Checkland and Scholes, 1990; Checkland and Holwell, 1998).

Bearing in mind the elements of analysis (cultural inquiry) and systems models (logical inquiry), a *rich picture* is produced that contains different issues, opinions, ideas of what is considered by people involved as relevant about a situation as a whole, not about 'a problem' (Checkland, 1981).

[21] The basic spirit of the initial methodology of SSM does not seem to have changed from the first development (Checkland, 1981) up to now (Checkland and Scholes, 1990; Checkland and Holwell, 1998). The core idea of producing models to compare with reality is maintained. What seems to be included is a better awareness of the conditions of the context in which purposeful systems are used to compare against the real world and take action to improve a situation.

Systems models can be built in as a way of addressing issues considered as being relevant in such situation as seen from particular worldviews about the situation (Checkland, 1981). They are models that contain the structured activities that are required to have a system such as the one described by a root definition (Checkland, 1981). With these models, a comparison stage takes place in SSM. This stage generates an agenda of changes in the real world, which are feasible and desirable to those involved (Checkland, 1981). On those changes, a new process of learning may start as actors' perceptions of reality and meaningful action change.

4.2.1.4.1 Cultural stream of inquiry

In the cultural stream of inquiry, the purpose is to understand more deeply some of the 'myths' and meanings that people attribute to their relationships with others in a situation. These give 'feeling' to the logic of the meanings and models that relate people to others in a proposed situation (Checkland and Scholes, 1990). Three elements of analysis compose the cultural inquiry: the intervention as a process of learning; the social system of a situation; the political system of a situation. These will be explained as follows.

The intervention

Analysis of the intervention is carried out in terms of looking at three main roles: the 'clients' (those who caused the intervention to take place); the 'problem solvers' (those who can do something about a situation) and the 'problem owners' (those in charge of carrying out the changes proposed). Inquiring about these roles helps to derive changes by considering the purposes of different groups of people in a situation.

The social system of a situation

The analysis of a social system embraces understanding the sets of roles, norms and values as well as the interactions between those in the context where the situation is placed. A social system will influence any change: "a role is characterised by expected behaviours in it, or *norms*...actual performance in a role will be judged according to local standards, or *values*" (Checkland and Scholes, 1990, p. 49). Any view of what to do about a situation will have to consider the prevailing values and

norms of people in order to be accepted or accommodated within the context of existing roles and relations in a situation.

The political system in a situation

In the political dimension, the commodities of power as a source defining relationships between different *interests* are analysed (Checkland and Scholes, 1990). The mechanisms and facilities of expression of power are taken into account as inhibitors or enablers of any change proposed[22].

In the above dimensions of analysis it is understood that any change derived from a logical analysis and modelling needs to take into account the existence of different meanings that drive purposeful action. The cultural stream is complemented with a logical stream, which makes emphasis in the use of systems concepts to understand and learn about a particular problem situation.

4.2.1.4.2 Logical stream of inquiry

In this stream, some systems as purposeful holons are selected considering their relevance to a problem situation. They can refer to issues or primary tasks. The latter kind describes purposeful human action and its boundary may coincide with action in the real world. The former may exhibit actions not necessarily institutionalised in the real world (for example a system to resolve disagreements on resource use) (Checkland, 1981). These systems are named and modelled in a conceptual way, and then compared with what actually happens in the real world.

For each system (issue-based or task-based) a series of root definitions are elaborated. A root definition expresses the core purpose of a purposeful activity system (Checkland, 1981), what a system does to accomplish a specific purpose. It is then modelled in a logical sequence of human activities as a system with features of monitoring. The emergent models of a root definition are called *conceptual models*. They express potential human actions that could be developed as a result of improving the current state of affairs in an organisation.

[22] In SSM, the account of power is not extensive. It considers that power produces asymmetries in relationships between people and that it should be considering as influencing or being influenced by any proposal for change in a situation (Checkland and Scholes, 1990).

For the root definition there are relevant elements to be defined using the acronym CATWOE (Checkland, 1981). The transformation (T) is the main activity in the form of a verb that states what the system does in the form of transforming some input(s) into outputs. This transformation is carried out by actors (A), and its outcomes benefit a series of people or groups of people (C or Clients). The transformation is meaningful according to a particular Worldview that states a set of values (W). The system has owners (O) who are capable of stopping the transformation at any moment if it is not meeting the desired purpose. The system also operates in an environment (E) in which there may be constraints of different types (regulatory, environmental, and economic) (Checkland, 1981).

In SSM, there is also a notion of information systems and their purpose, which influences the use of SSM in the realm of ICTP. This is presented in the following section.

4.2.2 The notion of information systems within SSM

Immersed in this notion of purposeful systems defined in SSM to conduct inquiry and in later developments, there is also the notion of an information system. An information system in SSM is seen as a *serving system (s)* for those individuals who take purposeful action in the real world (Checkland and Scholes, 1990; Checkland and Holwell, 1998). There is a direct link between this serving system and a served system (organisation). Learning in SSM is also learning about the use of information to take action.

About a serving system and a served system Checkland and Holwell (1998) say that in the process of inquiry of SSM,

> it is first necessary to conceptualise that which is *served*, since the way the latter is thought of will dictate what would be necessary to serve or support it...from that, a clearer view emerges of the nature of 'information systems' and IS as a field of study...there has to be a clear account of, first, the action supported, and then the information relevant to people carrying out the action (Checkland and Holwell, 1998, pp. 10,11 and 114).

From this perspective, an information system definition or implementation becomes a social act that requires concerted action by different people[23]. An information system(s) serve(s) different actions and different purposeful systems as holons. This perspective seems to subordinate any initiative related to information systems to a definition of actions to be supported. By doing this, any notion of change towards improvement in society with an information system also seems to be subordinated to what can be considered meaningful action.

How is that within SSM an information system is expected to serve an organisation? Wilson (1984), Checkland and Scholes (1990), Savage and Mingers (196) and Checkland and Holwell (1998) see the operation of an information system as *supporting the attribution of meaning* to data and information[24]. SSM can be used to produce categories of information that are considered relevant for a situation by people involved. According to them it is possible to define elements that compose an information system (like information flows, data structures and data manipulation systems) from conceptual models obtained through the logical inquiry (Wilson, 1984; Checkland and Scholes, 1990; Savage and Mingers, 1996; Checkland and Scholes, 1998). This process is continuous, as new perceptions of meaning and data come to support action (Checkland and Holwell, 1998).

The idea of attribution of meaning within SSM seems to pervade not only the definition and implementation of an information system; it seems to drive the practice related to the realm of ICT. Checkland and Holwell (1998) have defined what they call a *general concern* for the practice of IS in organisations. They acknowledge the diversity of research efforts made to conceptualise information systems or information technology within organisations. Despite this diversity, they see that there is a common concern on what the role of information system should be in an organisation. This is expressed as follows:

[23] Checkland and Holwell (1998) see that by challenging the traditional understanding of organisations as 'static goal seeking', they also challenge the existing notion of information systems as based on information required by the organisation to support decision-making processes.

> nowadays, we take the *core* concern of the field [ICT] to be the orderly provision of data and information within an organisation using IT (Information Technology); that information being relevant to the ever-changing activity of the organisation and/or its members (Checkland and Holwell, 1998, p. 39, my brackets).

From the above premises, it follows that from the perspective of SSM, the developing and maintaining of an information system becomes a dynamic process in which data and information need to be reviewed and provided continuously due to changes in the meanings to situations from individuals. However, what has not been questioned is the nature of the process of learning as related to accommodation of interests in relation to what can be considered meaningful as action in organisations.

The criticism levelled above in relation to the limits derived from the notion of accommodation of interests still seems to prevail in the practice of information systems. When using SSM in information systems practice, Checkland and Holwell (1998) do not seem to propose a way of counteracting asymmetries of power more than proposing the stabilisation in relationships between individuals in a group. This lack of consideration of those situations would not make clear for practitioners how to manage issues emerged from the lack of a common attribution of meaning to situations, or ethical issues which conflict with one another. Hence, it would be difficult to derive initiatives in information systems that do not support any 'meaningful' organisational action.

It follows that a critique is needed in relation to the notions of information systems practice within SSM. This critique should challenge the assumptions of the need to reach a degree of accommodation and frame a process of learning within it. The critique should be also directed to the process of learning as being framed within the organisational concerns from which accommodation should be achieved.

For the development of the information society, a more strategic view that enriches processes like ICTP from a systems thinking perspective should consider that there could be other concerns (not only those shared within an organisation) coming from other meanings that people attribute to situations. These concerns could constitute relevant systems which action could contribute to improve existing problem

[24] It seems that Checkland and Holwell (1998) distinguish between data and information, as the latter seems to have meaning for those who are served by an information system, a meaning in relation to the

situations. The assumption of information systems as serving the process of attribution of shared meanings should be also be challenged according to what emerge as relevant issues in a particular situation lived by people.

Various authors have used SSM to intervene in the practice of information systems. Some of the applications will be reviewed, particularly those related to the process of ICTP.

4.2.3 The use of SSM in ICTP

Some applications of SSM in the realm of ICTP are presented in this section (Checkland and Scholes, 1990; Galliers, 1992; Ormerod, 1996; Checkland and Holwell, 1998).

Checkland and Scholes (1990) and Checkland and Holwell (1998) have used SSM in the definition of information strategies for organisations. In one of the cases, SSM was used to find a new role for an organisational function in Shell (Checkland and Scholes, 1990). The use of SSM helped participants in the process of inquiry to structure different proposals that emerge around the redefinition of an information technology provision function; it also allowed researchers to learn about the problem situation[25]. In another case (a merger of two hospitals) (Checkland and Holwell, 1998), SSM was used to generate an information strategy for a new organisation. Strategy making led to a portfolio of information systems, which was presented for senior management approval. It was a process already defined in its scope within certain financial constraints. The role of analysts as specialists in methodology that conducted the process was also useful to "identify information gaps and opportunities which the new strategy could address" (Checkland and Scholes, 1998, p. 210).

The above two examples show an emphasis on the definition of information systems and the elements that guarantee their operation when using SSM. The role of practitioners also made these concerns with information a priority.

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activities developed. Data seems not to posses the above quality.

[25] This use of SSM has been regarded by Checkland and Scholes (1990) and Checkland and Holwell as 'Mode 2'. In this mode, SSM is used to structure information of the inquiry process; this also allows researchers to learn about a problem situation using the models derived by SSM.

Galliers (1992) has proposed using SSM to generate different 'information architectures' or maps of the information systems that an organisation might need. These maps should be flexible enough to be implemented in the future if the business strategies that the information systems support are put in place. In this respect, he sees that conceptual models can be used to define operational activities and their information support, which could be useful in the future for an organisation to gain competitive advantage in its environments. These conceptual models could be implemented when needed. Galliers seems to suppose a degree of predictability around the core processes of organisations in the future. This seems to be accepted by Checkland (1990) when he says that in organisations "the meanings...will remain static only for the most basic mechanical processes such as, say, logging the receipt of mail in a mail-order company" (Checkland, 1990, p. 313). Here it seems that the main concern when using SSM is making sure that the business processes are defined and that information systems support their operation.

Ormerod (1996) has also seen SSM as useful for the making of an information strategy. He prefers to use SSM in the process of defining a better way of performing a core process in an organisation. In his case study, SSM was used to explore in depth the nature of one process and to see different alternatives of making it. This later was converted into a project option, which had to be quantified in terms of costs and benefits. For this stage SSM was complemented with a different approach. SSM was used to clarify shared meanings about core processes in an organisation. Although not related directly to the definition of information systems initiatives, the use of SSM was limited to a concern with organisational processes.

In the above examples, the use of SSM has been regarded as useful in the definition of served systems (organisational processes) or serving systems (information systems) for organisations. Although SSM gives the possibility of raising different issues and exploring different holons, in the application of SSM to ICTP the main focus has been to what appears to be a core concern: the provision of information to support the attribution of meaning to organisational processes. This concern seems to be accepted by practitioners, who seem to subordinate their actions to its achievement in practice.

It can be said now that for the realm of ICTP, the use of SSM needs to address the issue of 'accommodation of interests' as potentially inhibiting further participation or inclusion of different perspectives in debate and action. This needs to be done as

issues may emerge related to technology or to social choice. Also, practitioners (analysts) and others should be allowed to exert their own ethical judgements if the focus on accommodation of interests may not address their concerns in a particular context.

Whether the above can be achieved in practice is not the main focus of this thesis. As there are doubts on the appropriateness of SSM to address these issues, the use of SSM in ICTP should not be directed to address issues of concern (including ethical aspects) directly. Instead, SSM can be employed as complementing other approaches in planning if one of the concerns to be addressed (defined not necessarily by accommodating interests) is to design any initiative as a human activity system, possibly supported by an information system. This will be seen later in this thesis.

4.2.4 Multiview

From SSM, Wood-Harper et al (1985) and Avison and Wood-Harper (1990) have taken the idea of the existence of different views about a problem situation in the realm of Information Systems (IS) and have developed the Multiview approach. It is an approach that aims to reconcile different methods that exist around the provision of information via an information system. In Multiview, it is argued that different solutions of what needs to be done to implement an information system from technical, clerical and strategic points of view can be defined and integrated. What Multiview does is to integrate these methods in the design and implementation of formal information systems, by providing relationships and connections between different methodological stages (Wood-Harper et al, 1985; Avison and Wood-Harper, 1990).

Under the label of 'eclectic', Multiview is proposed as an approach under which each method can be used according to where it is most appropriate, "with the best available methods for tackling that aspect of the problem" (Wood-Harper et al, 1985, p. 16). It is argued that this flexibility is necessary, given the complexity of real world situations that methodologies have to face.

The application of Multiview is said not to be linear from one stage to another. In the real world decisions are taken at any moment in the design or implementation of an information system, and methods are used in an iterative way. To address these

issues, it is proposed to explore different areas of concern when problems (or opportunities) related to implementation of IS arise.

For Multiview it is considered that participation of people in the definition of an information system is essential. People have the right to control their destiny and their actions. Design and implementation of IS seem to be opportunities to allow individuals to do so. If people are allowed to participate "then the implementation, acceptance and operation of the (information) system will be enhanced" (Wood-Harper et al, 1985, p. 24).

4.2.4.1 Stages of Multiview

Multiview uses the ideas of SSM to produce an understanding of the social context where an IS is going to be used, particularly about the activities that it will support with information. The social context is matched with a technical context in terms of the technical possibilities that exist to accomplish the tasks identified in the understanding of the former. A range of possible alternatives is defined and the best of them is selected. The following are stages of Multiview ((Wood-Harper et al, 1985; Avison and Wood-Harper, 1990, 1992; Bell, 1996).

Analysis of the Human Activity Systems (HAS). This aims to describe the context of an information system in terms of activities at work, relevant root definitions and their conceptual models. Stages of SSM are used to develop this description.

- Information Modelling. The models above are translated into models of tasks (manual and automatic) that accomplish the transformation stated. The models include information entities necessary to support activities, as well as information flows among them. Stages of SSM applied to information systems (Wilson, 1984, Checkland and Scholes, 1990) can be used to obtain these models.

- Socio-technical requirements. They include the different possibilities of alternatives to implementing the information and task models. These requirements are defined according to constraints considered important by an organisation.

- Human-computer Interface. This stage aims at designing the means by which the technical and human aspects of the proposed ISs can best communicate. These means include issues of security; dialogue screens and impact of the system in the workplace are addressed in this stage.

- Technical solution. From the above altematives, one is chosen and a design that includes considerations of control and retrieval of information, database and application maintenance and recovery of data is built.

To conduct each of the above stages, a role for an analyst using Multiview is proposed. Within each stage, the role of an analyst is to assess which methodological tools should be used to produce the desired outcome and co-ordinate their use. As an analyst needs to *accommodate* different views about the issues identified, he/she may have to iterate through the stages in order to ensure a *fit* design of an IS that integrates it into the working lives of people (Wood-Harper et al, 1985).

An analyst may use different methods (stages of methodologies) according to his/her understanding of a situation and what is needed. It is up to him/her to get the right mixture of methodologies to provide a design. It seems also that the analyst should ensure proper implementation of an IS. To do that he/she should collaborate in the design of plans of training, hardware and software selection, and maintenance of data (Bell, 1996).

The need to use different methods in Multiview resembles on the view portrayed in the realm of strategy making and ICTP (Chapter three of this thesis). Different methods may be needed to tackle emerging issues in a particular context where ICTP is taking place.

The role presented for an analyst in Multiview seems to acknowledge the possibility of different views in a process of defining and implementing information systems. However, this role is still constrained by the main concern (good design of an IS achieved through the accommodation of views) towards which the methodology is directed in organisations. Methodology seems to aim to accommodate different views into a good IS design. As Bell (1996) has said, "...The analyst is prepared for

the subjective view but still tends to work within the organisational constraints" (p. 38)[26].

4.2.4.2 Adding 'reflection' to the role of an analyst in Multiview

Bell (1996, 1997, and 2000) and Avison and Wood-Harper (1990) have developed a possibility of enhancing the role presented above. They have seen that the application of Multiview has prompted considerations about the role of the analyst in it. It is the analyst who makes choices of which methods to use according to his/her understanding of an organisational context. He/she is the one who decides which approach is best for a particular situation. In practice, the analyst makes a different application of a methodology from that formally stated (Watson and Wood-Harper, 1995). Should the analyst be better supported in his/her choices?

In an enhanced account of Multiview (Avison and Wood-Harper, 1990), it is acknowledged that an analyst may decide to play the role of an expert, or facilitator, or doctor that is able to diagnose and suggest what needs to be done. Or he may play the role of labour partisan and defend the worker's interests (Hirschheim and Klein, 1989; Avison and Wood-Harper, 1990). Playing a role for an analyst depends on his/her own view of a situation. This suggestion is similar to that proposed by Walsham (1993a) in the context of interpretive stances for the practice of IS. Different roles may be played. But how to justify the choices made? Could practitioners play a different role, perhaps a combination of different ones? What about raising ethical concerns?

Bell (1996) has proposed to enrich the flexibility of Multiview with more *reflective* capabilities for practitioners, regarding their participation in different contexts and what they do or can do about emerging issues that have arisen in practice (Bell, 1996, 1997 and 2000). He argues that it is important to provide IS analysts with the possibility of *learning* from the experience of using Multiview, in particular learning from people (including the analysts themselves) and reflecting on the use of the methodology according to the context where it is used. Aspects that should enhance reflection in practitioner are (Bell, 1996 and 1997):

[26] There are two versions of the Multiview approach, one developed in 1985 (Wood-Harper et al, 1985) and another developed in 1990 (Avison and Wood-Harper, 1990). The first one seems to focus on the design and construction of information systems. The second one includes aspects of selection of technological alternatives and design of implementation plans for the best alternative chosen. Simon

- An understanding of the context. An analyst needs to see the environment where a problem is manifested regarding what is acceptable and possible to do. In a particular context, there are different issues of *concern* from different groups that need to be raised and debated. Reflection should be fostered regarding what people want to achieve.

- The analyst (practitioner) driving the process. An analyst has to be aware that his/her preferences may drive the course of a process of defining and implementing information technology as well as the choice of different methods. Bell says that an analyst "...may consciously or unconsciously attempt to influence stakeholders towards pre-set ideas about what is right" (Bell, 1996, p. 76).

- The methodology. As a set of assumptions which are put in practice through methods, a methodology should be flexible enough to provide room to tackle some of the issues identified as relevant (e.g. issues of concern) by people involved in projects of the use of technology. This flexibility should include the analyst him/herself as being able to address in action issues of concern. An analyst should also be able to act and learn from learn from the practice developed, including employing different methods to tackle different situations.

- Participation. Regarding participation of people in processes of IS planning and implementation, Bell (1996, 1997) is also aware of the need to be careful and not to assume that everybody is willing to participate. Participation may be threatened by an intrusive role from an analyst telling people what to do, what is wrong and right. The role of an analyst should also be carefully managed depending on what needs to be done and what an analyst is willing to do.

Bell's account of Multiview is interesting in providing a space for reflection for analysts regarding various elements. It gives practitioners and participants in defining and implementing information systems the chance to be aware of their own assumptions about what they are concerned with and of what action is necessary regarding a particular context. Awareness also involves methodology employed and participation of people.

Bell's work (1996) seems to use the second version of Multiview although he uses some of the SSM stages to produce information models.

In these latter two aspects, however, Bell's account does not give much guidance on how to deal with situations in which an analyst encounters him/herself in a dilemma over what to do or which concerns to raise. The degree of flexibility proposed by Bell seems to account for supporting the idea for a practitioner of being flexible enough in order to cope with different circumstances, but this flexibility seems to be limited to satisfy what is required in a particular context by people.

In short, the use of Multiview integrates different perspectives surrounding the definition and implementation of information systems. Although a degree of flexibility is provided in dealing with different issues of concern emerged from the context of intervention and in allowing practitioners to assume different roles, the main concern of Multiview seems to be developing and maintaining information systems which, are 'successfully' used by people. This might undermine the process of learning and reflection about a particular situation and the possibilities of debating other concerns surrounding the implementation of an information system, which could have ethical consequences for an analyst and other individuals involved in an intervention.

4.3 TOP Approach

There are other approaches in which different perspectives are integrated for the design and implementation of technology. One of them is the TOP approach of Harold Linstone (1999). Linstone has provided an account of the phenomenon of decision making about technology. He includes various types of technology in his approach. For Linstone, there are different perspectives that executives or managers follow in organisations in general[27]. These perspectives hold 'partial truths' about what needs to be done with technology. Adopting a single perspective leaves important issues and people excluded from taking part in decisions on developing or implementing technology.

Linstone (1999) argues that decisions about technology are complex. In the realm of information systems, he claims that information systems are composed not only of technology but also of people, so their views should be included in any decision. For this and other reasons[28], to define an information system he proposes to integrate

[27] Linstone (1999) shows different examples of the application of his research in organisations in the public and private sector in the US.
[28] Linstone (1999) is very much aware of the results of traditional approaches to decision making, which in a good deal of cases have generated negative consequences for societies. For Linstone (1999),

different perspectives in an inquiring system that helps practitioners and executives to take different issues (and people) into account.

The inquiring system of Linstone provides a more 'holistic' view of situations of change in the way that perspectives overlap, complement or cancel (discourage) each other. Also the designer or manager of any technological system is included: "his/(her) psychology and sociology are inseparable from the system's physical representation" (Linstone, 1999, p. 53). As a result of using the inquiring system, decisions can be better informed and some of the views of those who may be affected by, involved in and benefit from technological change are included. Proposals for actions can be drawn from the integration of views, which will help executives and decision takers to conduct technological change. In this way, the inquiring system aims to be also practical (Linstone, 1999).

In his inquiring system, Linstone (1999) has identified three main types of perspectives that people (individually or collectively) hold about situations of technological change in organisations[29]:

A Technological perspective (T), in which there is a strong belief in the power of technology to solve existing problems in organisations by seeking optimisation. The belief is supported by knowledge made available through the use of tools like predictive models, statistics and number-oriented tools. This perspective adopts a long-term view of needs that are satisfied with the use of technology. In some areas of application of this perspective, the view of the future is determined mostly by assumptions about the present.

An organisational perspective (O) which 'holds back' in the first place the possibility of technological innovation happening suddenly in society. It relies on collective norms and values to support the idea that society should be more widely benefited by change and that change should happen in stages, according to present needs. In organisations, the (O) perspective represents the interests of units, political systems or communities.

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damages to the environment, war conditions, and other phenomena have resulted (and may result in the future) from emphasising one perspective in decision making (technological, organisational or personal) without keeping the others in balance.

[29] This also includes organisations developing technology for society in general (Linstone, 1999).

A personal perspective (P) in which individuals see a change as an opportunity to satisfy their own interests, either by aggrandising their own image or obtaining benefits only for themselves.

These perspectives, according to Linstone (1999) should be integrated in a decision, in such a way that a balance between them could be achieved. Also, decision-makers should be included in the process of integration. For the process Linstone suggests that practitioners support decision-makers by using their own judgement to achieve this balance. This involves selecting for decision-makers the most relevant views on these perspectives in a situation as well as the most appropriate methods and techniques to gain insight into the T, P and O perspectives.

Practitioners are also encouraged to be critical in challenging continuously existing knowledge by iterating in activities of gathering information, finding dependencies or relations between perspectives and being aware of the political sensitivity of information in organisations. Also practitioners should be aware of themselves (their preferences) when communicating information or designing alternatives of integrating perspectives.

Indeed, Linstone's account reinforces the idea of including different issues in the process of defining ICT initiatives. As has been argued, there is the need for an inquiry that involves definition or implementation of technology to be more inclusive. The views of the T, P and O perspectives may embrace different issues and values that people may want to foster by the use of technology. Also Linstone calls attention to the issue of reflexivity for practitioners. He is much aware of the personal preferences and values of researchers that drive the process of gaining knowledge about situations of change.

So far the ideas of enriching the view of ICTP about the need to tackle emerging issues, give participation to people, give room to their values, and to be critical towards the context and the role of practitioners seem to be supported by Linstone's view. Nevertheless and again, the need to discuss issues surrounding technology definition is highlighted, as Linstone's approach seems to be directed in the first place to producing sound decisions involving technological change. In his account, practitioners are driven by situations in which there is a technological change involved (Linstone, 1999). This concern should be put under review according to what is needed in a context of intervention.

4.4 Towards a Critical Understanding of ICT Planning (ICTP)

So far, the analysis conducted in this chapter has shown a range of systems-thinking based approaches, which have been used in the process of ICT planning (ICTP). Within those, practitioners are invited in principle to move "away from a preoccupation with data concerns" (Bell, 1996, p. 117) and to be more aware of what happens in the context of people where they are intervening. Approaches encourage practitioners to intervene by helping 'make sense' of the situations encountered; this demands a degree of flexibility in the use of methods and sensitivity towards understanding what is happening with people involved.

A more critical approach for ICT planning should provide room for the use of different methods to identify and address different concerns (information and non-information related), bearing in mind that an analyst has concerns and that other people may have them too. In this view it is important to keep awareness of the concerns that approaches like SSM seem to privilege and the type of participation that they promote in people involved in situations. As it was said, among these elements is the concern with information and the design of information systems, and a form of participation of people focused in designing and maintaining information-based plans.

Approaches like SSM could be used to structure a debate to address different concerns once they are identified and people involved are willing to do something about them. This also entails being critical about the ethical consequences that concerns would have for people involved in and affected by a process of planning. Reflection should also require a practitioner to reflect on his/her own concerns and the ethical consequences of adopting a stance about them. This reflection on what to do about a particular situation should be grounded in a form of deciding about different issues that allows the practitioner to contemplate the consequences that actions have beyond organisational concerns.

From the above, it follows that a more 'strategic' view of ICTP needs to be more inclusive, and consider the importance of other issues of concern apart from those based on information that affect situations as a whole and the flexibility of practitioners dealing with them. Situations of challenging accommodation of interests should be considered. This claim also brings to debate the need for practitioners to be more *critical* about themselves and about processes like ICTP, considering ethical

consequences that different issues and actions will have for the Information Society as a whole and their ethical role in interventions.

There is a strand of systems thinking which aims to be 'critical' by promoting awareness of elements of a process like ICTP that have been mentioned here: the context (of relations), the analyst (practitioner) and the methodology (set of principles operationalised via methods). Some applications of critical systems thinking in the realm of ICTP will be presented in the next section.

4.5 Critical Systems Thinking in the Realm of ICTP

In the literature there are various critical systems thinking (CST) accounts, which have been used to address issues related to the process of ICTP (Jackson, 1992; Clarke and Lehaney, 2000a; Warren, 2000). Either in a theoretical or practical way, these accounts have provided a series of considerations about the use of different methodologies in the realm of Information Systems and ICTP.

The accounts mentioned have relied on an early methodological development in CST[30]: Total Systems Intervention (TSI) (Flood and Jackson 1991a and b). This is a methodological framework that operationalises some basic themes that practitioners of Critical Systems Thinking should follow. Schecter (1991) has posed a summary of these themes. He distinguishes three main commitments enjoined to practitioners:

- Critical awareness. In it practitioners aim at revealing assumptions taken for granted in their practice, and support them by theoretical understandings that aim to address these assumptions as proceeding from society in general.

- Social Awareness. Practitioners aim to foster the development of conditions that guarantee that human beings develop their potential fully.

- Methodological complementarism. Practitioners develop different efforts that guarantee that methodologies are used according to their strengths and weaknesses when dealing with different types of situations.

[30] A development that has taken a different direction in CST is the work by Midgley (1992, 1997, and 2000) and Midgley et al (1998). This will be explained later as supporting the definition of a systems-based framework for the systemic-practice of ICTP (chapter seven of this thesis) and then complemented with the insights obtained from using the framework in practice.

To support these themes, in TSI there are the following main phases (Flood and Jackson, 1991a and b).

- Creativity, in which practitioners are encouraged to think of the situation in terms of organisational metaphors which help highlighting relevant issues to be addressed.

- Choice, a stage in which practitioners choose the most appropriate methodology (or series of methodologies) to address issues identified.

- Implementation, in which the application of methodologies is made and reflections on the process are drawn. The process can also be complemented with more continuous reflection on each stage, in a way that there can be creativity, choice and implementation recursively in each of the stages of the process (Flood, 1995).

4.5.1 Applications of TSI in information systems

In one of the applications of TSI in the field of information systems (IS) definition (in a university), Warren (2000) has argued it contributed to fostering the use of different methods to tackle diverse contexts. It also appeared to contribute to fostering people's participation. For practitioners it offered a type of mediating conversation between methodologies coming from different paradigms which relied on continuous critical awareness on the underpinnings and contexts in which the methodologies were used. More generally, Warren warns about the small number of critical approaches that have been used in the realm of ICTP. Practitioners should be aware of the limited acceptance of CST outside the academic community and the potential lack of grounds to decide about ethical concerns that CST seems to generate when allowing approaches with different ontological assumptions to be combined in dealing with situations.

Clarke and Lehaney (2000a)[31] have also used some of the ideas of TSI and CST to intervene in a process of ICTP in a higher education institution, in which they were

[31] The application of Clarke and Lehaney (2000a) also uses Midgley (2000)'s idea of systemic boundary critique to define the scope of the project. It relies then not only on the use of TSI but on the application of boundary critique. The use of boundary critique will be explained in chapters seven, eight nine of this thesis.

commissioned in principle to examine the state of a project developing a student registration system for the organisation. For them, it became clear through the development of the process that what was needed was to consider people as the main focus of study.

The use of TSI allowed Clarke and Lehaney (2000a) to be critical about the boundaries of the project (boundaries[32] of what was included in the project) and also to be critical about the use of different methods, considering the conditions of the context in which they were intervening. TSI offered Clarke and Lehaney more grounds for criticism about the 'whats' (content) of initiatives than other approaches based on interpretivism. They also used TSI to reflect on the outcomes of the different stages of their project, reflecting on the assumptions that drove the different stages of the project and also on the methodologies used.

As a result of the above inquiry conducted by Clarke and Lehaney (2000a), action was focused on two fronts: a strategic one in which the 'whats' of a new information system were to be defined; and a front in which the main concern was to improve the facilities provided by the existing system. These fronts were tackled with the use of different IS and systems-thinking related methodologies suitable for the issues identified in them.

The context of intervention in the case presented by Clarke and Lehaney (2000a), it seems, did not exhibit situations of conflicts; nor did it seem to pose challenges for practitioners regarding ethical issues of concern that arose. Warren (2000) described a similar situation in her case study; she did not experience any conflict which was not solved by dialogue or by encouraging participants to be more involved in the process of planning. In both of these cases, this situation of the absence of conflict seemed to provide researchers with a degree of flexibility in the choice of methods and in the facilitation of debates about what to do. This can be seen also as being able to achieve a degree of *accommodation* of concerns as different parties involved seemed to agree with initiatives developed.

In the above examples, CST and its companion TSI proved to be a useful approach to guide practitioners in the choice of methods related to the conditions exhibited by the context of intervention. What is not seen clearly in either case has to do with the

[32] See previous footnote.

emergence of issues not necessarily related to the definition or implementation of information systems. Both of the above cases seem to focus inquiry on addressing the needs that an information system will serve. What about other concerns? It may have been the case that in identifying these information needs some issues of concern could have arisen arise which are part of the concerns of people about their way of living.

Hence, researchers seem to have focused their inquiry on achieving definition of initiatives to implement information systems successfully than exploring conditions of the context in more detail in relation to the people involved in the processes of planning and their concerns as participants in society. Why did the inquiries not lead to consideration of emergent issues during the time of intervention? What decisions were taken in relation to including and excluding issues of concern not related to the definition of an information systems plan? How are these decisions justified? What about these issues that may require attention because they can have a wider impact in society?

Nor does the role of researchers appear to be a matter of concern to them regarding the ethical content of the choices made in both cases. On which personal ethical grounds were choices made about the methods proposed? Did researchers agree with outcomes? What if they had not? Is the non-existence of conflicts an opportunity for researchers to exert their judgement without being accountable for it? Is it instead a manifestation of other issues that do not come to the surface? How to deal with issues which are not immediately apparent? What implications were considered for society as a whole?

It seems that, perhaps due to the lack of distinguishing conflict in situations, neither the use of systems-thinking-based approaches nor TSI-based approaches provide guidance for practitioners on how to deal with situations of conflicts (evident or not) of views or different ethical stances regarding what to do.

The above questions point to the need to provide more grounds in CST applied to the realm of ICTP. These grounds should guide researchers in their ethical choices, as well as providing a better understanding of a context of relations between people in which there could be conflicts regarding different concerns about a particular situation. It also seems necessary to provide conditions to ensure debate between

people with different and possibly competing concerns and to ensure that critique is maintained on the consequences that actions have for society as a whole.

With the above ideas, the conclusions of this chapter are presented.

4.6 Conclusions

In this chapter, a review of systems thinking approaches applied in the realm of ICTP has been made. Steps have been taken towards promoting more inclusive processes like ICTP in which people can raise different issues, and situations are considered as exhibiting a degree of complexity due to the existence of different views, interests and values about particular situations, as well as conflicts which might or might not be evident.

These efforts should be continued, putting more emphasis on the role of practitioners as ethical subjects, and allowing the emergence of issues not necessarily related to the definition of information-based plans or having impact only on organisations. For the information society, practitioners should play a more active role in dealing with issues of concern at different levels of intervention (institutions, groups, and countries if that is the case). These issues may appear as interventions in ICTP unfold.

Hence, a further enrichment of systems thinking approaches should be more critical. Critique should be added to the possibility of challenging assumptions taken for granted in organisations and society in general about issues of concern. This critique also includes practitioners, their roles and their choices in interventions.

For processes like ICTP there is the opportunity of developing a more 'strategic' view that considers different issues of concern and allows involvement and debate between individuals and groups regarding what to do to improve the way of life in the information society. This critique also needs to call the attention to what improvement means in a particular context of intervention and to what conflict or the absence of it means in relation to the perceived 'accommodation' of concerns and interests between people.

Approaches should allow for the management of different issues, not only those related to technology. Technology should not be considered as an inevitable

resource or structuring property in the development of human interaction. The latter seems to be driven by values, interests and concerns for action.

With these ideas in mind, a framework to enrich the discussion on ICT planning is going to be developed in the next chapters. In chapter number five the ideas of the systems theory of autopoiesis will be introduced.

Section Two: Towards a Critical Systems Thinking Framework For the Practice of ICTP in the Information Society

Chapter 5: Autopoiesis

5.1 Introduction

Having reviewed the state of the art of the information society and of approaches for the process of Information and Communications Technologies planning, in this section a critical systems thinking framework is defined. The purpose of this chapter is to present one of the systems theories on which the framework is based. It is the theory of autopoiesis (Maturana, 1988, 1998a and 1998b; Maturana and Varela, 1992).

The theory of autopoiesis is going to be explained as follows. First, some biological principles that underpin the theory are presented. Then, systems concepts that are introduced to create the idea of living beings as Autopoietic systems are used also to start providing an explanation of what has been called social phenomena. autopoiesis brings important implications for the interaction of human beings in a context as well as for the consequences of human interaction. From there the main implications of the theory for ICTP are drawn.

5.2 Elements of Autopoiesis

Maturana and Varela (1987) have developed a theory of autopoiesis to understand the process of cognition of living beings. Derived from research in biology, this theory has important implications for human understanding and human action. The purpose of the theory, it seems, is to explain the biology of different realities and phenomena like social interaction and language. This explanation brings important ethical implications for human beings in general.

Maturana and Varela (1987) consider the phenomenon of knowing as an activity that is related to the autonomy of human beings as living beings. An essential aim for Maturana and Varela is to provide explanatory grounds for the question of knowing 'how we as human beings know'. The explanations of the theory are based on the human capability of *distinguishing,* or differentiating something from a background. Human beings can distinguish 'unities' as wholes that exhibit certain properties verifiable by observers and that can be distinguished from a background. Two of the

distinctions that compose the theory are organisation and structure, as will be presented in the following section.

5.2.1 Organisation and structure

Maturana and Varela (1987) argue that at some point in the evolution of biological species, molecules as basic elements of life gathered together in networks in such a way that they could *reproduce themselves*[33]. This also implied that they were able to draw a boundary that separated their existence from others. These networks of molecular reactions "produce the same type of molecules that they embody, while at the same time they set the boundaries of the space in which they are formed" (Maturana and Varela, 1987, pp. 39-40).

With evolution, molecules also formed complex systems[34], which resulted in what are seen today as living beings. In the process of reproduction, living beings keep a basic identity while they change some of their characteristics. This gives rise to historically connected classes or groups of living beings, which can be distinguished as unities by an observer. As it was said before, this distinction of a unity is made from a background; hence such a unity has boundaries clearly defined and verified by an observer.

Two terms are coined by Maturana and Varela to explain the above historic 'lineage' in terms of systems (the notion of system is a set of elements and relations among them that can be distinguished by an observer[35]). The **Organisation** of a system is the set of relations among components that make it a member of a particular class. Organisation gives a system an identity. The **Structure** of a system is the set of components and relations among them that constitute a particular unity and make its organisation real. In evolution the organisation is maintained while structure changes continuously.

Maturana and Varela call the mechanism that supports self-production in living beings together with conservation of their organisation **autopoiesis.** It is a distinction observed in the dynamics of systems, in which the constitutive elements and

[33] "It is not clear how this occurred. These origins are probably forever lost to us...some odd cells underwent reproductive fracture (division of a cell in two identical without any external element taking part) as a result of their internal dynamics..." (Maturana and Varela, 1987, p. 66, original parenthesis).
[34] Meta-cellular systems (Maturana and Varela, 1987).
[35] This definition is not stated explicitly, but it may be inferred from the distinctions of unity that Maturana and Varela (1987) define.

relations among them are maintained (organisation) and the structure changes either in response to external perturbations or to the internal dynamics of the system. What is key for autopoiesis is that the dynamics exhibited by a system are determined by its structure at the time, not by perturbations from inside or outside it. These only *trigger* changes of state in the structure of a system. This phenomenon proper of Autopoietic systems is called structure-determinism. Any change depends on structure and the latter has been configured in the history of previous changes of systems in time.

An Autopoietic system is visualised by Maturana and Varela (1987) as follows, indicating the self-production of components and the closure of the operations of production:

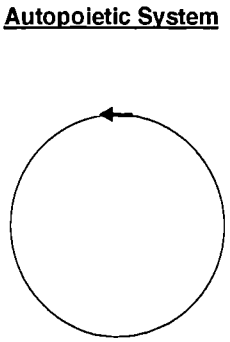

Figure 5.1. An Autopoietic system (Maturana and Varela, 1987)

Maturana and Varela (1987) describe this idea of determinism in Autopoietic system as descriptive and observable, rather than predictive. A system is determined by its structure to interact in a certain way with its medium. The process that emerges from this interaction is called 'structural coupling' and it will be explained in the following section.

5.2.2 Structural coupling

Maturana and Varela (1987) call the history of structural change in a unity without loss of organisation *Ontogeny*. This process always occurs in a medium and finishes only with the disintegration of the unity (loss of organisation). A medium is 'anything a system interacts with' (Maturana, 1981, 1988) including other Autopoietic systems (Maturana and Varela, 1987; Maturana, 1988). Maintaining an organisation requires a system as a unity to adapt adequately to the changes of its medium. Its structure should be able to 'select' its own adequate states to survive by maintaining its identity according to conditions exhibited by its medium.

When there is a continuous flow of stable or recurrent interactions between an observable system and its medium, an observer can say that there is a **structural coupling**. An observer can speak of structural coupling when "...There is a history of recurrent interactions leading to the structural congruence between two (or more) systems" (Maturana and Varela, 1987, p. 75).

Structural coupling with an environment means that both structures (system and environment) change congruently in an exchange of perturbations while maintaining their organisations[36]. For both system and environment, the other represents a source of perturbations but not of instructions (Maturana and Varela, 1987). As was said before, for an Autopoietic system the range of changes is determined by its structure rather than by its medium.

Structural coupling becomes a condition for existence for living beings as systems living in a particular environment or medium. As systems and environment do not instruct each other in the type of interactions selected, the process that an observer sees is better understood as a drift of interactions in which system and environment change their structures congruently and are determined by them.

When an Autopoietic system is observed in structural coupling with its medium, Maturana and Varela (1987) provide the following convention to describe the continuous flow of interactions between a system and its medium in which states of change are mutually triggered:

[36] Maturana and Varela (1987) do not call the medium of an Autopoietic system Autopoietic but structure determined.

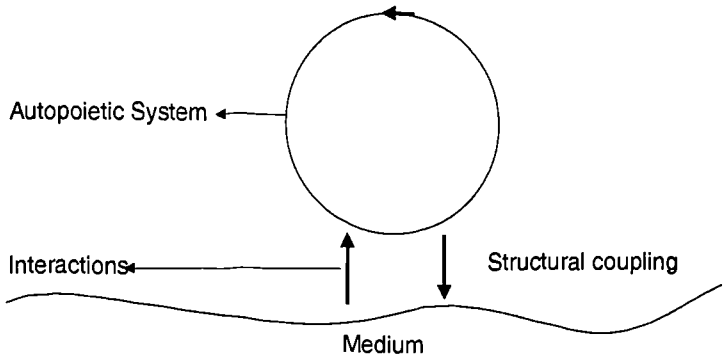

Figure 5.2. The structural coupling process of an Autopoietic system and its medium (Maturana and Varela, 1987)

5.2.3 Living systems

The explanation of Maturana and Varela (1987) of Autopoietic systems stems from the domain of biology. They consider living systems a special type of Autopoietic system. Living systems are diverse in their organisation and identity. Their possibilities of interaction are determined by the structures of their components although they develop new ones in the process of maintaining their organisation as wholes.

For Autopoietic systems as living systems the type of structural coupling is "the present state of the history of structural transformation of the phylogeny to which it belongs...[it] results from the conservation of the structural coupling of the previous (systems) in the lineage" (Maturana and Varela, 1987, p. 77, my brackets). Evolution shows different biological species, whose organisation has been maintained and whose structure is in continuous structural coupling with their specific environment, which may include 'other' Autopoietic systems. The observable biological diversity is for Maturana and Varela the most cogent evidence of this natural drift of living beings through time (Maturana and Varela, 1987).

For some of the species that have emerged as a result of these series of 'drifts', one of the components of the structure that has emerged is the nervous system. According to Maturana and Varela the nervous system plays an essential role to relate what the observer sees as 'movement' or behaviour with the expansion of possibilities of interaction for living beings with their environments.

5.2.4 The nervous system

From their experiments on various phenomena related to vision in animals, Maturana and Varela (1987) noticed that the physical movement in living beings like displacement, bending, catching insects, etc. was modulated by their nervous system. The mechanism used to co-ordinate movement is a complicated interaction between networks of sensor cells (nervous system) and motor cells. Both networks are structurally coupled and change continuously in the process of keeping the coupling. There seems to be a mutual modulation between these types of networks. The role of the nervous system is to *expand (or constrain)* the realm of possibilities of interaction for an organism[37]. Conversely, the result of change in an organism affects components like the nervous system and dynamic relations between them.

The above also means that interaction (based on motor systems) is enabled and enhanced by the structural coupling with this 'sensitive' system. New interactions with it cause changes in the structure. Hence, the nervous system also takes part in the organism's autopoiesis. At the same time it does so exhibiting operational closure, e.g. its states of activity are determined by its own structure.

Maturana and Varela (1987) represent the interaction between an Autopoietic system and its nervous system as a series of arrows that represent the interactions and the self-production in a network as follows:

[37] In this connection, it helps to say that the plasticity of the nervous system allows to create an infinite set of distinctions which have correspondence in action (including the 'distinctions of distinctions' of action) (Maturana and Varela, 1987).

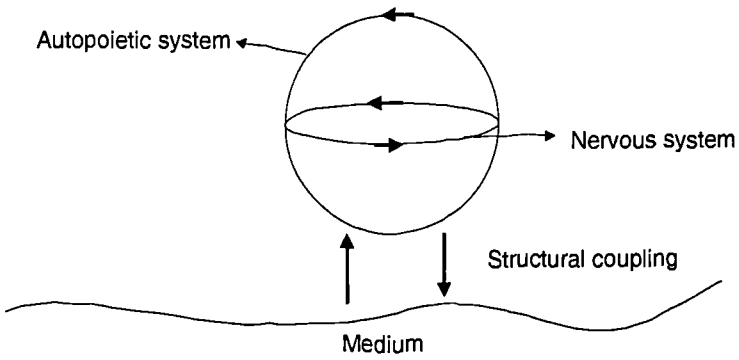

Figure 5.3. An Autopoietic system, the nervous system and the medium in structural coupling (Maturana and Varela, 1987).

For human beings, Maturana and Varela (1987) argue that the flow of interactions with a medium has generated changes in the nervous system and has resulted in the distinction of a specific domain of interactions that can be observed as happening between human beings as Autopoietic systems. This is the domain of *relation* (Maturana, 1998a).

The domain of relation includes all activities that human beings perform as living beings and that can be *distinguished* by observers (including oneself). These activities include also those who have arisen as a result of evolution of human beings and those that have emerged as the product of interactions with others (Maturana, 1998a). The domain of relations triggers changes in the biology of an Autopoietic system. Maturana (1988, p. 72) would argue that "we can kill or elate with words" meaning that in our relations with others our biology and that of others are affected. The nature of human language will be detailed later in this chapter.

Through evolution, changes in the nervous system have made possible for human beings to produce a set of distinctions about their actions, and also to produce *distinctions* of those distinctions. Maturana and Varela (1987) define some of these distinctions to address a new understanding of the phenomena of behaviour, knowledge and language. These will be explained in the following sections.

5.2.5 Behaviour and knowledge

Maturana and Varela (1987) create a set of distinctions that enable an observer to 'select' and understand the autopoiesis of living beings *according to what he/she and others can see.* The first of these distinctions is called *behaviour:*

> by behaviour we mean the changes of a living being's position or attitude, which an observer describes as movements or actions in relation to a certain environment (Maturana and Varela, 1987, p. 136).

As seen, this distinction is dependent on two elements: an observer and the context where he/she is operating, the environment in which he/she sees the changes. Maturana and Varela (1987) see this distinction as potentially useful to allow a deeper understanding of the phenomenon of human knowledge. For human beings Maturana and Varela propose that knowledge is dependent on the context where behaviour is observed and assessed as such by an observer. They say,

> we admit knowledge whenever we observe an effective (or adequate) behaviour in a given *context*, i.e. in a realm or domain which we define by a question (explicit or implicit)...it is in reference to the effect the observer *expects* that he assesses the structural changes triggered in the organism (Maturana and Varela, 1987, p. 174, my italics).

From the above, it follows that knowledge as an observed phenomenon depends on what an observer *can assess or do in relation to a behaviour in a context.* Maturana and Varela seem to include knowledge about oneself in such description of knowledge; in this case the assessment would be of oneself. In either case, there is a dependency of the activity of knowledge on an observer who establishes certain criteria to assess knowledge.

At this point, it can be said that autopoiesis establishes a normative condition for knowledge and knowing by establishing a dependency on an observer. For human beings interacting with themselves or with others, Maturana and Varela (1987) see that in any process of knowing, an observer should include him/herself in the phenomena to be known. It is an observer who should also see him/her self as a participant in the phenomenon he/she is describing. It is he/she who distinguishes

certain issues and who is able to define and assess knowledge according to his/her own criteria.

On an observed phenomenon, different observers may come up with different assessments of the same situation, different *knowledges*. To this, one should be able to be critical enough to find a way (with other observers) to enrich a description of a situation by promoting the emergence of different views. As said by Maturana and Varela (1987), the mechanism of autopoiesis unveils the limitations that human beings have when assessing knowledge with a sense of being certain about what we observe. This limitation "compels us to adopt an attitude of permanent vigilance against the temptation of certainty" (Maturana and Varela, 1987, p. 245).

It might be premature now to derive any implication for the development of an Information Society from the ideas of autopoiesis. However, it is worth saying that for any situation of the daily life the ideas of autopoiesis bring forth the existence of issues that need to be 'observed' from different points of view. This means appreciating different assessments that other people might have about a situation. To those claims of 'this is how things should be done', one should adopt a critical attitude, as the claims may not have been formulated on the grounds of 'observing' different issues or allowing different people to provide their own views on a problem. There is a condition that compels human beings to adopt this attitude of openness determined by their autopoiesis.

From the ideas on behaviour and knowledge, Maturana and Varela (1987) move on to describe other phenomena that are part of the domain of relation.

5.2.6 Social phenomena and linguistic behaviours.

As was said before, in autopoiesis the medium of an Autopoietic system is anything a system interacts with. The plasticity of structure of an Autopoietic system to establish structural coupling with its medium contemplates also other Autopoietic systems as part of the medium (environment[38]) with which an Autopoietic system interacts. For Maturana and Varela (1987),

[38] In some parts of this chapter I use the two terms (medium and environment) interchangeably.

> it is possible, however, for these interactions between organisms to acquire in the course of their Ontogeny a *recurrent* nature (Maturana and Varela, 1987, p. 180).

For human beings, the above idea also opens up the chance to see other distinctions that can be assessed as being recurrent in the interaction between individuals. These distinctions also can contribute to observing a phenomenon that involves two or more individuals as Autopoietic systems. Maturana and Varela (1987) call such a distinguished unity consisting of two or more living beings a 'third order' unity. Such a unity consists of groups of organisms (in this case Autopoietic systems) coupled together and possessing a particular Ontogeny and adapts as a group to an environment also particular to it. The third order unity can be represented as follows:

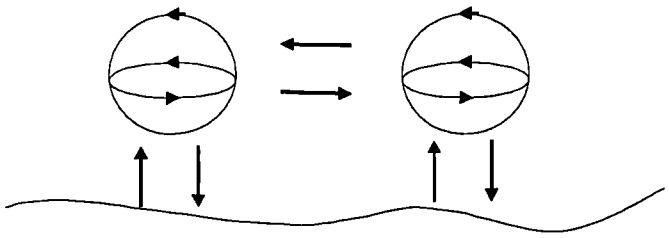

Figure 5.4. A third order unity composed by structurally coupled unities (Maturana and Varela, 1987).

From recurrence in the interaction between unities as Autopoietic systems, Maturana and Varela (1987) derive a set of further distinctions. They argue that argue that **social phenomena** happen when living beings are observed to co-ordinate their actions in a recurrent way. In these situations individuals participate in activities that "arise only as co-ordinations of behaviours between otherwise independent organisms" (Maturana and Varela, 1987, p. 189). Following the ideas about behaviour as 'observed action' and recurrent interaction, **communication** is defined as the co-ordinated behaviours mutually triggered among the members of a social unity (Maturana and Varela, 1987, p. 193).

Through evolution, recurrent interactions between living beings also gave birth to the existence of **linguistic behaviours**. Linguistic behaviours are defined by Maturana and Varela as acquired communicative behaviours that an observer can describe in semantic terms, "as if what determines the course of interaction were the meaning and not the dynamics of structural coupling of the interacting organisms" (Maturana and Varela, 1987, p. 207). As social phenomena, linguistic behaviours also emerged in the co-ordination of actions. Maturana and Varela argue that the linguistic domain includes all these behaviours and gives rise to "...Ontogenically generated domains of co-ordinations of communicative behaviour" (Maturana and Varela, 1987, p. 208).

In the domain of human relation, a 'third order unity' is a distinction of the *medium* for the autopoiesis of human beings which operate with others in language (Maturana, 1988). In this way Maturana and Varela (1987) emphasise the Autopoietic nature of individual human beings and the importance of language in their interaction. The level of discussion and awareness for them is centred in the interaction between individuals as unities. It is at this level that human language happens, as it will be described as follows.

5.2.7 Human language.

For human beings as living beings and Autopoietic systems, the existence of social phenomena and communication is directly related to the phenomena of interaction in language. What an observer sees when two or more people interact is a 'third-order-unity' and with it a whole new set of phenomena that isolated individuals cannot generate. If interaction is made recurrent, for each individual his/her own autopoiesis will now demand a coupling with others in order to maintain the new collective unity created. In this way taking part in interaction is part of the structural coupling, and becomes "...an expression of conservation of its adaptation as an individual" (Maturana and Varela, 1987, p. 197). An observer can distinguish also how individuals also exhibit linguistic behaviour, as if what they achieve in co-ordinating their actions were the product of their communicative acts.

It is not only this distinction that matters for an explanation of human language but the implications that interaction in language has for action that Maturana and Varela see as relevant in the domain of human relation.

Linguistic domains among human beings have emerged in the co-Ontogenic drift between individuals. Through evolution, the behaviours observed in humans include what can be distinguished as action, and also the set of distinctions *of distinctions* of activity (Maturana and Varela, 1987, pp. 209-210). The different conditions experienced by humans in their evolution have led to distinguish different languages as coming from different domains of action, which have been constituted in the flow of human beings through different paths of interaction and different processes of structural coupling with their media.

The set of all these distinctions can be observed as **language.** Language appears when what can be observed refers to distinctions of distinctions for action in a linguistic domain (Maturana and Varela, 1987; Maturana, 1988). Linguistic distinctions have been made recurrent and incorporated in the way human beings interact in their domains of action. What human beings do when interacting in language is co-ordinating their actions in particular domains or realms of activity.

For example, when a distinction in language like 'table' is used, there is 'in the background' or understanding of people a set of distinctions for action on how a table can be distinguished. These distinctions include properties that one observes or one can perform on a table. The same applies for a distinction of a distinction of action: 'move the table'. There are operations that make this distinction coherent with what an observer and others perform when we say 'move the table'.

Maturana and Varela (1987) will argue that for human beings, *nothing* in the domain of relation can be distinguished outside language; nothing happens outside the realm of language, as the set of distinctions created by individuals refers to what they (we) live in their (our) domains of action with others. There is always a reference to a particular way of living that is brought forth or can be traced back by the utterance of a distinction. With human evolution even distinctions referred to a self and others have also arisen in the co-ordination of co-ordinations of actions. About a self as an observer, Maturana and Varela (1987) say:

> by operating in language with other observers, this entity (observer) generates the self and its circumstances as linguistic distinctions of its participation in a linguistic domain. Meaning arises as a relationship of linguistic distinctions, and becomes part of our domain of conservation and adaptation (Maturana and Varela, 1987, p. 211).

Moreover, the operating of human beings in language as 'selves' has consequences for their autopoiesis. When made recurrent in interaction, distinctions in language also become part of the structural coupling between individuals, *in such a way that what is said has effect in what is done* and vice- versa. This is also supported by the above idea that there is a mutual influence that exists between distinctions in language and changes in the nervous system and in the domain of possibilities of interaction of human beings.

Through interaction, an individual becomes 'programmed' to distinguish or react to (even in him/herself) specific behaviour(s) associated with distinctions in language. It is the way in which individuals co-ordinate their actions. Maturana and Varela say that "we do not see what we do not see, and what we do not see does not exist" (1987, p. 242). This means that our Autopoietic condition in observing and interacting with others is conditioned by how we have lived and how we live with other human beings.

Maturana and Varela (1987) also make emphasis on the nature of language as having arisen from co-ordination of actions, involving agreement in action[39]. As will be seen, this co-ordination has been developed under an emotion of mutual acceptance between those who interact.

5.2.8 Co-operation as the origin of language and social phenomena

For Maturana and Varela (1987), the origins of human language as part of the structural change was influenced in evolution by the emergence of some regular practices in pre-historic groups, when human beings were mainly hunters and gatherers. Close-knit interpersonal relationships associated with collecting or sharing food or having regular sexual practices helped towards the stabilisation of groups and interactions with others, and then to the emergence of language:

> thus, in the intimacy of recurrent individual interactions, which personalise the other individual with a linguistic distinction such as a name, the conditions may have been present for the appearance of a self as a distinction of a linguistic domain...we believe it is through the conservation of such styles of living...that

[39] This also includes agreement in disagreement for action. As it will be seen later, human interaction in conversations also includes the emotion of separation as an agreement of not taking action together (Maturana, 1988).

> language arose as a result of loving co-operation (Maturana and Varela, 1987, pp. 220-222).

From the above Maturana and Varela (1987) argue that *co-operation and mutual acceptance* allowed the emergence of human beings as such. Co-operation allowed human beings to be able to live with others, to survive and develop, to become human; the distinction of a 'human being' as such makes sense when interacting with others (including oneself) in the domain of relation (which also appeared with human beings as such). Hence, co-operation (co-ordination) and mutual acceptance of individuals as individuals should be the basis of coexistence between individuals.

In situations of disagreement between human beings, Maturana and Varela (1987) argue that what can be distinguished is the existence of different realities as linguistic domains that are brought by different observers. To these situations, we as human beings should remind ourselves that there are no such things as *social* phenomena without co-operation and mutual acceptance:

> the acceptance of the other person beside us in our daily living...his certainty — however undesirable it may seem to us — is a legitimate and valid as our own because that certainty expresses his conservation of structural coupling in a domain of coexistence. A conflict can go away only if we move to another domain where coexistence takes place (Maturana and Varela, 1987, pp. 245-246).

It follows that distinctions provided by autopoiesis calls for a continuous awareness of the phenomenon of human interaction based on the existence of biological limits that influence the processes of observation and interaction in language. Basically these limits have to do with individuals coming from different domains of action in their particular structural coupling as Autopoietic systems. In human interaction, what individuals bring forth in language is an intersection of domains as realities of action. To the possibility of conflict, it is seen as an opportunity to co-construct — in language — new domains in which individuals could 'couple' with each other, keeping their organisation and identity.

Following the need to enrich a "strategic' view of the information society, it seems that the idea of individuals as creating reality in language can reinforce the need to promote a deeper understanding of people and their concerns as coming from their participation in different domains of action. It also seems important to respect the existence of different individuals exhibiting (in language) distinctions of what should be done.

For researchers, autopoiesis invites them to assume their biological condition and the limitations that it brings in observing reality or producing knowledge. They (we) should be conscious about being immersed in the phenomenon with which they are dealing with when interacting with others (or with themselves) and reflect continuously on the implications of this condition for their practice and for the situation they are dealing with. Researchers have their own concerns, preferences, criteria and ways of approaching a situation; other individuals have them as well. In research as a human activity, they should also be aware of these limitations, as will be presented in the following section.

5.2.9 Explanatory paths in autopoiesis: objectivity without parenthesis and objectivity within parenthesis.

The ideas of autopoiesis also pervade the understanding of knowledge and observers in the process of cognition and from there *the role of researchers*. Maturana (1988) and Maturana and Varela (1987) propose two paths that an observer may take in explaining a phenomenon of reality. These are called 'Objectivity without parenthesis' and 'Objectivity within parenthesis'.

5.2.9.1 Objectivity without parenthesis

This path does not include an observer in an inquiry about reality. In explaining a situation, an observer implicitly or explicitly assumes that the existence of phenomena in reality takes place independently of what he/she does (Maturana, 1988, p. 29). Things exist independently of whether he/she knows them. An observer uses a reference to some entity external to him like matter, energy, mind or consciousness, ideas or God as his/her ultimate argument to validate and hence "to accept a reformulation of the praxis of living as an explanation of it" (Maturana, 1988). Such an attitude entails a privileged access to an objective reality.

Within this path, there is an exclusion of an observer (and others) as participant(s) that bring(s) object(s) of concern about reality. Observers in this path do not take responsibility for their actions, nor they are concerned to recognise other observers as bringing different but equally valid views about a situation. Disagreements stem from arguments, which are referred to independent entities, not to the observers themselves. Behind this, there is a willingness to find knowledge, which could be applied universally to explain such a situation independently of individuals[40]. In this path, a claim of knowledge is a demand for obedience (Maturana, 1988).

5.2.9.2 Objectivity within parenthesis

Within this path, an observer accepts his/her biological condition as a living system. His/her cognitive abilities are affected when his/her biology is altered. As a living being, an observer has to accept that he/she has an 'inability to distinguish in experience what we distinguish in daily life as perception and illusion' (Maturana, 1988). Distinctions brought in language "arise endowed with the properties that realise the operational coherences of the domain of praxis of living in which they are constituted" (Maturana, 1988, p. 30).

Objectivity within parenthesis also leads an observer to recognise his/her participation in multiple domains of existence with others. These are derived from sets of operational coherences distinguished in language from a particular way (praxis) of living. These domains are

> equally legitimate as domains of existence because they arise in the same manner as they are brought forth through the application of operations of distinction by the observer in his/her praxis of living...(they are) equally legitimate but not equally desirable, explanatory realities (Maturana, 1988, p. 31, my parenthesis).

Within the path of objectivity within parenthesis, reality becomes a reality brought forth by different observers coming from different linguistic domains. The existence of multiple realities equally valid in their biological origin also makes valid the existence of different explanations about a particular situation, as there could be different observers taking part in it. According to Maturana, an observer explaining a situation (to others, including him/herself) ends up bringing forth him/herself as taking

[40] Maturana (1988) argues that this is a trend in modern Western civilisation.

part in as many "different domains of reality as many different domains of entities that are constituted in his/her explaining" (Maturana, 1988, p. 39). Each observer brings his/her own autopoiesis and hence his/her own dispositions to see, explain and act about what he/she considers relevant in a situation.

From this perspective of objectivity within parenthesis, a conflict about understandings of a situation becomes an opportunity to identify different explanations coming from different human beings: in short it becomes an "invitation to a responsible reflection of coexistence, and not an irresponsible negation of the other" (Maturana, 1988, pp. 30-31). By others Maturana means other individuals engaged in interaction. Coexistence is based on the disposition (emotion) of mutual acceptance and collaboration.

The existence of these two paths is portrayed in the following diagram describing an observer as an Autopoietic system and the possibilities that he/she has:

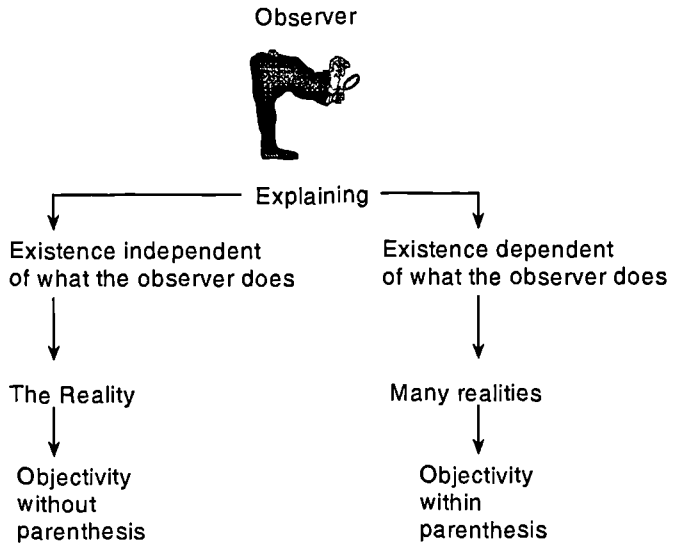

Figure 5.5. Different paths in explaining reality (Adapted from Maturana, 1988, p. 32).

The two paths for explaining reality are connected with the understanding of knowledge given above. In the path of objectivity within parenthesis, knowledge becomes dependent on the activities of an observer who is him/herself immersed in the explanations he/she gives. Such an immersion makes an observer aware of his/her own limitations when explaining knowledge, and invites him/her to adopt an

open attitude of listening about different realities and inviting others to co-construct a new domain of action as knowledge.

It can be said now that for the process of ICTP, adopting a path of objectivity within parenthesis leads practitioners to encourage listening to different explanations about a situation; raising of different issues by people in planning becomes evident within this path. Issues of concern emerge when people bring forth their own realities as domains of action in which they have taken part in the history of their particular interactions. Interaction in language should be used to adopt the attitude of listening and reflecting on how individuals bring their own explanations about reality and on which issues need could attention.

This attitude implies being able to accept that other individuals (including ICTP practitioners) may bring explanations about a situation that can be distinguished as following the path of objectivity without parenthesis. To those, the invitation to co-existence should be fostered in principle as a way of respecting different realities and then as a way of moving forward in interaction.

5.2.10 Emotions and conversations

With their ideas Maturana and Varela (1987) and Maturana (1988) aim to open up new possibilities for the understanding of reality and social *phenomena in language* from the point of view of individuals as Autopoietic systems. Maturana and Varela (1987) and Maturana (1988) suggest to scientists that the acceptance of certain premises in a domain of action cannot be justified solely by the use of reason. An observer as a scientist should be aware that his/her cognitive statements have limits and "cannot constitute demands for obedience" (Maturana, 1988, p. 62). Acceptance of certain premises is more driven by human emotions. In autopoiesis, a different perspective from what has been considered traditionally an emotion (perhaps a feeling) is taken. **Emotions** are attributions made by observers to themselves and to others of particular dynamics of inner body dispositions. They determine the domain of actions which human beings are *willing to take part in* at a specific moment in time (Maturana, 1988, p. 62).

Emotions determine the domains of action in which individuals take part in their interactions. As dispositions for action, they determine the acceptance of individuals to interact with others (including themselves). Emotions are complex and are

directly related to the structure of human beings as Autopoietic systems (including the nervous system) which determines the changes in these systems. Emotions cannot be predicted, just identified after they are triggered; they simply happen (Maturana, 1998b).

Maturana (1998a) argues that human emotions are braided with actions, so if one wants to identify (*a posteriori*) emotions as dispositions of actions in human beings (including one-self), one should look at the actions performed by individuals in interaction. At the same time, actions influence the biology of human beings and trigger structural changes in them (us), which determine a change in the domain of action and hence in the emotioning as a disposition for action. For example, one can be listening to another person while one is interested (under the emotion that allows one to couple with the other person in interaction). However as a result of the interaction (e.g. the other person said something completely stupid to us), one gets tired, stops listening and changes one's own 'emotioning' to something more interesting (e.g. asking the other person about a different subject, or inviting him/her to go for a walk). Also as a result of this interaction, structures of both of the persons as Autopoietic systems change.

In connection with the ideas about language presented above in this chapter, Maturana (1988) proposes that these different domains of co-ordinated action between individuals should also be seen as linguistic domains. An observer can distinguish these domains in language. When an observer sees a flow of co-ordination of actions and emotions taking place between individuals that interact in language, a **conversation** can be distinguished. Domains of action can be characterised as different networks of conversations in which individuals take part driven by particular emotions.

According to Maturana (1988), individuals flow through different domains of action when they flow through different conversations; this flow is determined (but not strictly defined) by their course:

> when this flow of body dispositions for recurrent interactions ends, when in the course of this emotioning the emotion that leads to recurrent interactions in language ends, the process of languaging (conversation) ends (Maturana, 1988, p. 49, my parenthesis).

When they (we) do the above, change takes place. For Maturana, any change in conversations via interactions "is liable to result in a change in our body-hoods; also changes in our body-hoods result in changes in our conversations" (Maturana, 1988, pp. 68-69). From the above, it follows that there is a mutual influence between conversations and change. Conversations determine the domain of possibilities of action, and actions at the same time influence the course of conversations, both being distinguished in interaction in language. In language one can decide to enter into different domains of action. There are different emotions as dispositions for action in each domain.

Although emotioning determines the course of interactions of human beings with others (including oneself), the existence of conversations as influencing emotions as dispositions for action can also be used to promote change in individuals, in their explanations about reality and also in their interactions with others. Maturana (1998a,b) is aware of the importance of having 'recurrent' human interactions in conversations guided by specific emotioning(s). This means that one create the conditions (in conversation) to foster specific emotioning(s) for action; one can also foster conversations about a particular issue of concern on which there could be the need to have a disposition to action. Using these ideas change can also take place[41].

In a process like ICTP, the raising of certain issues could be guided by some emotions in which different concerns could emerge as being relevant for the course of interaction of people. In debate, one could develop with people the need to address specific concerns. As a result, they could start 'emotioning' and being able to act regarding these concerns. One can also foster the development of certain conversations with the purpose that issues of concern could be seen as important by those taking part in conversations and could be addressed in further interactions.

As autopoietic systems, change in humans should take place due to the triggering of structural changes that determine what has been called behaviour in action. autopoiesis in human beings describes change as guided by structure, and changes in structure take place in interaction with others (including one-self, and including the physical structure as well as the structure of cognition). This should be observed

[41] For example Bilson (1996, 1997) has used the ideas coming from the theory of autopoiesis to improve the process of group therapy by inviting people to co-emotion about specific situations with the purpose of developing change about what to do about certain issues.

when defining a framework to support the 'interaction' between human beings in a process like ICTP.

5.2.11 Membership of domains of interaction

For Maturana (1988) different domains of action are based on different emotions. A domain of action (including conversations) exists as long as its members take part in it through the network of conversations that constitute it under a specific emotion. Human systems are systems of co-ordination of actions in language: "...that is, they are networks of conversations" (Maturana, 1988, p. 68). According to Maturana (1988), domains differ then on the networks of conversations (and emotions) that constitute them. Those networks do not intersect, but 'couple' with each other through the individual.

For individuals, membership in different domains is based on criterion of acceptability of what is adequate for them to *do*. Maturana will say about this: "whoever satisfies the criterion of acceptability for members of a particular community (domain of action) is a member of it" (Maturana, 1988, p. 61).

The above means that when interacting with others in a particular domain of action, individuals are accepting the emotion(s) that drive it as dispositions for action. By doing so, individuals become accountable for their actions in that particular domain, and therefore they perform what is required to do in it. Otherwise, individuals move to other domains seduced by other emotion(s), conversations or actions that constitute these domains (Maturana, 1988). To the possibility of individuals being immersed in different domains of action, Maturana and Varela (1987) and Maturana (1988) emphasise the fostering of interactions based on mutual respect and acceptance for social phenomenon to take place in the domains to which an individual belongs.

For a process like ICTP, the existence of individuals immersed in different domains of action (interaction) presents the opportunity of listening and enquiring about issues of concern that are talked about in these domains and that might be affecting participation of people in planning. These issues could be driving individuals to live certain concerns and leave out others. Or these issues could help to foster improvement of the way of life of individuals in society, with or without the support of information technology.

5.2.11 Awareness on concerns from Autopoiesis

It follows from the above that autopoiesis supports the need for individuals to be aware of the existence of different issues of concern that could be lived in different domains of interaction. Within the path of objectivity within parenthesis, reality becomes multiple realities as domains of action between people should be listened to and considered in interaction. In a process like ICTP, what seems to be needed first is the opportunity of identifying different issues of concern when different individuals interact. These issues can be considered as different explanations about a situation. However, this openness towards different concerns should consider that individuals flow continuously through different domains of action, making the raising of issues contingent on this flowing. Any 'listening' to issues of concern should be continuous.

Also in autopoiesis an observer is placed as being part of the situation he/she is trying to know. For ICTP, this means that a practitioner as an observer should be aware of him/herself as an Autopoietic system, able to identify some issues and not to be concerned about others. This should be considered in order for a practitioner to be able to listen to other individuals engaged in the same domain of interaction, as well as to reflect on different issues that need to be developed in action.

From autopoiesis, there is a strong claim towards coexistence between individuals. Nevertheless, the existence of different explanatory paths about reality also acknowledges the existence of certain phenomena, in which emotions are different from mutual acceptance and collaboration, for example obedience (Maturana 1988). It may be the case that in interaction, people want to impose their own explanations on others. Of these, practitioners should also be aware and respect their existence in the first place[42].

Moreover, it will also be argued that in autopoiesis the existence of different domains brings different ethical concerns. This is another consideration raised in the analysis of ICTP within an information society. As will be seen, in autopoiesis there are different ethical stances about 'others' (individuals, including oneself), and this situation is addressed again with an invitation to foster co-existence and mutual acceptance.

[42] However, in autopoiesis there does not seem to be a more detailed guidance on how to proceed when these situations of 'obedience' are encountered but to promote co-existence as the basis for any human relation.

5.3 Ethics in Autopoiesis: Concern for Others

According to Maturana and Varela (1987) and Maturana (1988), human beings are not exclusive by nature, e.g. they do not exclude 'others' from taking part in domains of action. When behaviour of members is such that they recognise the exclusion of other individuals from participating in a network of conversations of a domain, and the emotion that drives such conversations is not mutual respect or collaboration, some limits or boundaries to the relationships with others[43] can be distinguished. Distinctions of **ethics** emerge in a particular domain of action when human beings think that there has been a breakdown or dislodging in the recurrence of interactions between individuals under the emotion of mutual acceptance (Maturana and Varela, 1987).

When there is a situation in which some people are excluded from taking part in a domain of action, the members of such a domain reflect on and justify the boundaries identified using 'rational' arguments, which for Maturana (1988) are mixtures of emotion and ways of reasoning[44]. In this justification, a notion of what a legitimate 'other' as an individual or collective 'other' which take part in conversations of a domain emerges. Maturana would say that

> although in us ethics arises in our emotioning as a biologically founded concern for the other, we live this concern differently in each social system that we integrate as a result of their different constitutive consensual braiding of emotioning and reasoning that specifies who is an 'other' (Maturana, 1988, p. 75).

Following on the discussion on the existence of different realities as domains of actions, Maturana (1988) argues that there are different social domains with different ethical concerns for 'others' as built in the co-Ontogeny of co-ordination of actions with others. Although ethics arises in a biologically founded concern for the other, individuals live this concern differently in each social system in which they (we) take part (Maturana, 1988). Those people who do not belong to a particular domain of action in a given moment "do not belong to the domain of our concerns for human

[43] For Maturana (1988) and Maturana and Varela (1987), ethics has arisen in the biology of human beings and although ethics calls for mutual acceptance and respect of others, this emotion is lived differently in domains of relation in which exclusion has to be justified.
[44] These arguments show the contradictions of emotions that human beings experience when they have to justify ethically an emotion other than that of mutual acceptance (Maturana, 1988).

beings at that moment, and no ethical question arises in us with respect to them" (Maturana, 1988, p. 75).

Because of the above, Maturana (1988 and 1998b) is aware of the difficulties of imposing universal ethical concerns that are not constituted or do not emerge from domains of action of individuals. We as human beings find uneasy to exhibit ethical concern in action for others with which a mutual concern has not been developed in interaction[45]. Human beings change their (our) concerns for other human beings as they (we) move from one social domain to another, e.g. as they (we) move from one network of conversations (social or non-social) to another through the flow of interactions with others (Maturana, 1988).

With the above claim, ethics in autopoiesis becomes an invitation to recognise *different concerns for others coming from different domains of inter-action.* When different concerns are exhibited, some of them will be considered as legitimate, some others will be seen as not totally desirable (Maturana, 1988). This means that in the emotion of mutual acceptance, ethical concerns should be brought to debate, with the aim of providing a background that regulates or stabilises them to allow the coexistence of different individuals.

If the existence of different ethical concerns is accepted, then it can be argued that individuals flow by using language from one domain to another driven by emotioning and reasoning, carrying out different ethical concerns for different 'others'[46]. For individuals, changes in conversations and in networks of interaction will contribute to changing their existing concerns for others; either including others in a particular network of conversation or enabling different people to interact in language and recognise possibilities for coupling based on concern (braided in emotion and reason) for other 'others'.

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[45] As an example of this, Maturana (1998b) recalls a situation in which a Chilean friend of his, having seen pictures of the slaughter in Hiroshima during the Second World War, said "so, what do people expect me to feel about the victims? I was not even born when this happened, and I do not feel sympathy for them either". This shows the difficulty of feeling 'concerned' about others with whom there has not been any interaction in domains of action. However, this difficulty can be surmounted if individuals are seduced to the emotion of feeling concern about others. To do that, engagement in conversation about issues of concern would be required, as well as creating an emotion of concern in individuals.

[46] Maturana (1988) does not specify entirely in his argument who this 'other' is. However the explanatory path of objectivity within parenthesis does not exclude the possibility that these concerns could be related to 'others' who are non-human. In an example, Maturana (1998a) explains coexistence by portraying a situation humans and non-humans (a spider).

5.4 Conclusions

In this chapter, the main ideas of the systems theory of autopoiesis have been explained. These ideas bring an understanding of human interaction that is based in the biology of human beings and their characterisation as Autopoietic systems. Autopoietic systems are determined by their own structure to change. What a medium does is simply to trigger changes that are made possible by the structure of the systems. This entails a continuous self-production in Autopoietic systems.

Using the ideas of autopoiesis, human phenomena have been explained in relation to interaction between individuals. The idea of knowledge as representing a reality in a unique way has been discouraged. Autopoiesis recognises the existence of multiple realities in which individuals are immersed. These realities are explained and lived in language. Individuals constitute in their interaction different phenomena, which they live under different emotions. Human interaction in language is mutually dependent on the biological condition of human beings as Autopoietic systems, in a way that any human interaction has consequences for the autopoiesis of those who take part in it. At the same time autopoiesis determines (but not entirely) the interactions that individuals will live.

For the practice of ICTP, autopoiesis gives validity to the existence of different domains of action which are lived in conversations, which are a mixture of languaging and emotioning and in which different *concerns for others* could be identified in the flow of interactions between individuals. Not only an organisational domain but also others should be considered as influencing the explanations about a situation that an individual gives. Different concerns emerged from these domains could be brought forth in language and included in the invitation for coexistence that autopoiesis brings with it. People (including practitioners themselves) may exhibit concerns on which conversational reflection could be developed. In interaction, these concerns can bring ethical issues about 'others' that should be necessary to consider in interaction.

The awareness of different ethics brings also an important *ethical concern.* autopoiesis as a mechanism to explain human autonomy provides a background to be considered in interaction in language between human beings. Ethics arises as being lived differently in different domains of action. From this acknowledgement, autopoiesis invites observers to promote co-existence (in action) with others with whom a concern can be lived in interaction.

The argument expounded by Maturana that follows from the path of objectivity within parenthesis provides the view of a possibility of coexistence with others. Disagreements can be considered as disagreements in explanations about ways of life of individuals with the corresponding ethical concerns about others involved. This path also brings observers as responsible for defining the type of coexistence they want to have, and the domains of action they want to take part in.

In the next chapter, some applications of the ideas of autopoiesis will be presented. Ideas from autopoiesis have pervaded the realms of computer technology design, sociology and organisational management. The main tenets of some of these applications will be reviewed.

Chapter 6: Applications of Autopoiesis

6.1 Introduction

The language of concepts defined by Maturana and Varela (1987) has found a good deal of followers in different areas. Autopoiesis has been used to explain different phenomena in relation to the interaction of human beings. What seems to be taken further in research is the possibility of exploring phenomena from the perspective of self-production. This perspective has generated debate around various issues and provided insight into the explanation of these issues in relation to the dynamics portrayed by autopoiesis. The debate has led to use autopoiesis to investigate some phenomena taking place in the realms of organisational management, physics, economics, sociology, law, communication and information technology (Luhmann, 1982, 1995a and 1995b; Winograd and Flores, 1987; Robb, 1989a and 1989b; Zeleny and Hufford, 1992; Gregory, 1996; Brans and Rossbach, 1997; Zeleny, 1997)

This chapter presents three main applications of the ideas of autopoiesis: one in the realm of computer systems design; another in the realm of sociology and another in the realm of organisational management. The first one accounts for an alternative perspective in the design of computer programs in organisations which considers human conversations as a pivotal point for design (Winograd and Flores, 1987). The second one is an account of society as an Autopoietic system that is composed by sub-systems that are also Autopoietic (Luhmann, 1982, 1993, 1995a and 1995b). The third one uses some of the ideas of autopoiesis to analyse phenomena in organisations (Robb, 1989a, b; Mingers, 1989; Gregory, 1996).

A review of the above applications is made, regarding the main ideas about autopoiesis that were presented in the previous chapter. Two main issues remain from the original ideas of Maturana and Varela that could be used for further applications of autopoiesis. First, the existence of different domains of interaction in which individuals flow; this provides a process like ICTP with openness and continuous awareness on the possibility of including different concerns. Second, the importance of individual and group action to shape the living of concerns in interaction between individuals. These issues will inform the definition of a critical systems thinking framework to support the practice of the process of ICTP.

6.2 Understanding Computers and Cognition

In their book of 1987, Terry Winograd and Fernando Flores integrate their ideas about a view on computer systems design. For Winograd and Flores, there is a tradition in which practitioners have been immersed when designing information systems. This tradition embraces a set of assumptions about the nature of human knowledge and cognition. These assumptions build a 'pre-understanding' of situations that determines the space of possible answers for the problem of computer applications design. Winograd and Flores aim to challenge some of these assumptions, as they do not seem to address a deeper understanding of the context where computer systems are used. Nor they provide support for what they consider essential for human action in organisations: conversations for commitment.

6.2.1 The Role of representation and rationalism

Departing from an analysis of the current tradition in the area of design of 'intelligent' systems, Winograd and Flores (1987) see that there is a strong emphasis in practitioners of computer systems design to represent the human world. The challenge for designers is to be able to describe a situation in terms of objects; then finding relations among some observable and definable objects that can help to provide a model of prediction of what a situation can be. This model is the core of a computer system. What practitioners seem to be doing is abstracting models that are supposed to guide human activities from the physical world. In areas like decision making, management and cognitive science this type of practice is applied. The general method followed by this 'representation-based' tradition of design seems to be based in some steps like (Winograd and Flores, 1987, p. 15):

- Characterise a situation in terms of objects, their properties and relations among them.
- Find general rules that apply to situations in terms of objects, relations and properties.
- Apply rules 'logically' to a situation, from where ideas of what should be done about this situation should emerge.

In the method described, the role assigned to language seems to be to describe a situation. Language seems to be understood as a set of words and rules from which meaning can be generated. Language describes the world. There is a system of rules by which perceptions about the world can be translated into formal language and their validity verified.

With premises about both method and language, Winograd and Flores argue that a computer system can be designed as a set of objects, properties and relations that can deal with problems of human meaning. As the premises above emphasise the need to provide logical reasoning in description, the set described also defines possible actions to be derived from modelling a situation in a computer system. These actions may influence or support human behaviour. Hence, problems of decision making, problem solving or cognition about specific areas can be tackled with this approach by providing models of description and prediction which will support human action.

Winograd and Flores (1987) express their concern that an overemphasis in the above trend of computer systems design, which fosters abstracting from real world situations, is driving the design of information technology nowadays. The possibilities for human interaction seem to be constrained by what designers understand of a situation and built into it in a computer system. In this respect, it is not a computer program but a human being, which understands and predicts. Computers cannot enter into networks of human interaction as individuals do; i.e. *computers cannot be engaged in commitments for action* (Winograd and Flores, 1987). The scope of design of information systems cannot embrace all the different conversations that take place in a community of people. Nor can the meanings given to objects, relations or properties provide a full account of the background that people share in order to make sense of their interaction in language.

For Winograd and Flores, in language *people are concerned, and they act driven by concerns.* As Maturana and Varela (1987) have argued, human language and human action are related mutually. In language, possibilities for action are defined, and action influences the flow of interactions in language of human beings. This characteristic of human beings as Autopoietic systems is unlikely to be represented in a computer system, as the flow of interactions in human beings is determined by our emotions as dispositions of action. They involve our body-hood, our previous

history of interactions and the domain of behaviours that our biology allows us to perform.

Moreover, from autopoiesis it can be said that the attribution of meaning by individuals is not a static process. Meanings are lived in interaction with others and denote co-ordination for action. As individuals flow in interaction, meaning as co-ordination for action changes. Bearing in mind these and other issues, Winograd and Flores (1987) shift the focus of traditional computer systems design towards what constitutes for them the core of human interaction: conversations for action. This view has basic concepts grounded in what individuals do with others in a particular domain of action. Two of these concepts are understanding and domains of cognition. They will be explained as follows.

6.2.2 A New view of understanding: concern for action.

Bringing in the ideas of Heidegger, Gadamer and Maturana, Winograd and Flores (1987) argue that traditional approaches for computer-systems-design cause a problem of *blindness*. This means that designers are unable to bear in mind different views or assumptions that emerge during human interaction. An alternative view should stem from a re-conception of understanding. The phenomena of understanding should involve an observer and a phenomenon observed equally. An observer brings in him/herself a pre-disposition to understand new phenomena, a pre-disposition influenced by the circumstances he/she has lived before. There is a background for interpreting events and language. Drawing from Heidegger's ideas, Winograd and Flores argue that "the interpreted and the interpreter do not exist independently: existence is interpretation, and interpretation is existence" (Winograd and Flores, 1987, p. 31).

From this view of understanding that includes an observer and his/her circumstances, Winograd and Flores (1987, p. 32) highlight the following ideas that are used to guide a new approach for information technology design:

- Implicit beliefs and assumptions cannot all be made explicit. The limits of a description by an observer are defined by the set of beliefs, in which he/she operates; to some of them an observer is unaware. There cannot be complete or objective understanding out of an observer.

- Practical understanding is more fundamental than 'detached' theoretical understanding. By being more immersed in the world-at-hand, individuals gain better appreciation of their situation. Human beings cannot avoid acting in any situation, and they (we) are not able to grasp fully all the consequences of action.

- Human beings do not distinguish objects, properties or people in situations unless there is a *breakdown* or a dislodging in human inter-action (including the interaction of individuals with themselves) that makes them recognise different elements from a background. From this Winograd and Flores support the idea of designing technology that supports human interaction 'at first hand' in different domains of human activity in which interaction needs to be supported to lead to co-ordinated and effective action.

- Meaning (of language) is fundamentally social. Meaning is distinguished in a context where human beings are interacting. Meaning arises as a distinction, which implies recurrence and stabilisation of co-ordination between individuals.

- Language is action. Language defines what is going to be done in further action. Any utterance in language, either by omission or distinction, alters the course of human interaction

The above premises define a space for the design of computer tools. This space is based in the social construction of language, and the need to provide human beings with tools which help them in their interactions with others, particularly in those situations of dislodging in the conversation with others or in the management of co-ordinated and effective action.

6.2.3 Domains of cognition and language

To define a new framework for computer systems design, Winograd and Flores (1987) then use the ideas of Maturana about the existence of different domains of action. They see that a cognitive domain (domain of cognition[47]) is a domain of action. Winograd and Flores are interested in the existence of consensual domains, e.g. domains of co-ordinated action between living systems. They argue that

[47] Here Winograd and Flores (1987) seem to describe cognition as a process of producing knowledge. They follow Maturana and Varela's (1987) understanding of knowledge as they acknowledge the

language can be seen as a consensual domain in which mutual behaviours are orienting each other. In language observers perform distinctions as explanations of cognitive domains which are essentially social and action oriented, e.g. they are immersed in a community that distinguishes them as distinctions for action in the particular domain that is explained.

Flores and Winograd (1987) pursue the above ideas about language further when they propose that human language as a consensual domain has a direct relationship with the co-ordination of action. For them the co-ordination in language also involves *commitment for action*. Human action supported by language embraces commitment and this can be distinguished in the process of conversations between individuals. Winograd and Flores provide their view of language as follows:

> to be human is to be the kind of being that generates commitments, through speaking and listening... (This dimension) is developed in speech act theory (especially in later work like that of Habermas)...in revealing commitment as the basis for language, we situate it in a social structure rather than in the mental activity of individuals (Winograd and Flores, 1987, p. 76, original parenthesis).

When there is a breakdown in conversations in language towards commitment for action, there is a set of objects, structures and relationships between them that can be distinguished as an aid to help coping with the breakdown. This is also the case of computers. Winograd and Flores declare their own understanding of computers as based on a view of co-ordination and commitment for action in language:

> computers do not exist, in the sense of things possessing objective features and functions, outside of language. They are created in the conversations human beings engage in when they cope with and anticipate breakdown...Computers are not only designed in language but are themselves equipment for language (Winograd and Flores, 1987, p. 79).

With this understanding of commitment, conversations and breakdowns in co-ordinated action, Winograd and Flores (1987) provide a foundation for the design of computer systems and technology tools. This is expressed in some guidelines for the design of technology tools.

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influence of the person who 'knows' in the process of 'knowing'. They also see that individuals are immersed in a context of interaction, which acts as a background for the production of knowledge.

6.2.4 Guidelines for design of information technology tools

Winograd and Flores propose the following ideas to guide design as a continuous effort to improve human co-ordination with technology. To begin with, in their view organisations are considered as *networks of conversations*. Technology tools may help in conversations to (Winograd and Flores, 1987):

- Improve resolution of situations. In organisations, a breakdown is manifested in a situation of irresolution, e.g. the course of action of what should be done is not clear. To these, design may help to anticipate the emergence of such situations by creating networks of support to cope with potential breakdowns, and also allowing conversations of possibilities to emerge and to be managed in new domains of action.

- Complete conversations. For individuals, new computer tools[48] could provide them with reminders of the stage of their conversations. In the form of "Where do I stand in relation to my commitments?" tools should people with a map of the degree of completion of their conversations and monitor the speech acts that individuals perform in order to complete their conversations. Tools can also structure conversations in a generic form provide standard formats of conversations[49], keep temporal and causal relations between different conversations.

- 'Enhance structural coupling'. As the interaction between individuals and actions demands a degree of 'coupling' to be effective, tools may help to enhance the 'readiness-to-hand' of automatic or manual objects that humans need to manage in their interaction. These objects should belong to a particular domain of action, called by Winograd and Flores (1987) 'systematic domains'.

[48] Winograd and Flores (1987) refer to the tool called "Co-ordinator" which they have developed as the primary example.
[49] Winograd and Flores (1987) see that a basic question to guide design of tools to support conversations is "who makes requests and promises to whom, and how are those conversations carried to completion?" (Winograd and Flores, 1987, p. 168).

As seen, the premises of Winograd and Flores follow the line established by Maturana. They regard the need to see human beings as engaged in different domains of conversations. Also the view seems to follow the path of objectivity within parenthesis in which the notion of a unique reality independent of observers is abandoned. It is argued that human beings are able to distinguish 'at first hand' what they live in action with others. The role of language is action-oriented, and the focus of co-ordination of action relies on considering human beings as interacting for commitment. Technology tools are said to help human beings to achieve a better degree of co-ordination and commitment for action in their interactions with others. Technology should support human conversation and human interaction with a medium (including others) by providing readiness to act and by fostering the disposition for action in the various engagements in interaction of human beings with others.

However, Flores and Winograd seem to emphasise a concern with achieving effective action from commitment, as it will be detailed in the next the next section.

6.2.5 Some issues in Winograd and Flores' account.

Some criticisms will be levelled here of the approach developed by Winograd and Flores (1987) considering the potential limitations that the approach has in relation to the understanding of human interaction. To begin with, Winograd and Flores (1987) in their account consider that human beings are at all times *engaged in meaningful* activity. They have said:

> what really *is* (existence) is not defined by an objective omniscient observer, nor is it defined by an individual — the writer or computer designer — but rather by a space of potential for human concern and action (Winograd and Flores, 1987, p. 37, original emphasis).

The concern expressed above is taken by Winograd and Flores (1987) to support the idea of designing technology which could be able to cope with breakdowns or dislodgings in conversations with others. Dislodgings are understood as incoherences between what is said and what is done. The blindness of traditional approaches is addressed and managed with a more practice-oriented approach in which concerns for action are the drivers of design. Objects and properties that are

needed to address these concerns are said to emerge in design. These concerns are not individual; they emerge in the need to co-ordinate action.

Although a more collective view is defined to understand and manage breakdowns in human interaction, Winograd and Flores take a view of activity of concern based on the premise of *effective* action. For them, technology should be designed to foster commitment to action requested; technology should ensure the completion of commitment. What kind of commitment should it be? There are doubts about the nature of commitment for action that Winograd and Flores do not seem to address. The definition of effective action and effective commitment seems not to be questioned in relation to the kinds of commitment, those who define them, and the potential refusals of human beings to accept them, not necessarily to breakdowns in conversation but to a lack of emotion in respect of the commitment. There is the need to open inquiry about interaction to other issues than commitment for effective action.

Moreover, in Winograd and Flores's account, little is said about the ethical content of the action to which people are supposed to be committed. In the method and guidelines proposed above, little is suggested to address the possibility of having breakdowns due to different ethical concerns exhibited by individuals taking part in conversations. These could be situations of planning that need resolution, but their management should transcend the organisational boundaries if a deeper debate on the consequences of actions is going to be carried out, as has been suggested previously in this thesis (chapters three and four).

At this point, it can be argued that Maturana's idea of the multiple existence of domains should be pursued further, looking at the implications of having individuals taking part in different domains of action, perhaps with different conversations, degrees of commitment, breakdowns, etc, and with different *concerns*. It seems that a deeper understanding of the conditions of the 'background' of concern of individuals (i.e. 'background' refers to the sense of care for the world, orientation in the world, according to Winograd and Flores, 1987) is needed to take them into account in the design of technology.

This understanding should bear in mind Maturana and Varela's (1992) original ideas of people being driven by an intertwining of emotion and reason, concerned with particular 'others' and regarding particular issues as ethical. The invitation for coexistence from autopoiesis could also inform any inquiry into the nature of conversations and drive the commitment of individuals in Winograd and Flores's approach. Their view on design could be used if a concern with 'commitment' for co-ordinated action is raised in planning, and hence the method guidelines for design could inform any initiative in this respect.

6.3 Autopoiesis in Sociology

The idea of Autopoietic systems has been also taken further by researchers who provide understandings of society at different levels (individuals, groups, and institutions). In these levels, the object of study is considered as an Autopoietic system or composed by Autopoietic systems (Bednarz, 1988; Zeleny and Hufford, 1992; Luhmann, 1982, 1993; 1995a and 1995b; Zeleny, 1997).

The main purpose is to explain phenomena considered as influencing society using the concepts of operational closure, self-reference and communication in language. The notion of 'social', it seems, embraces any phenomenon occurring in society. The concepts used are derived by researchers from the ideas of Maturana and Varela (1987), although for some researchers the situation of social autopoiesis is a new theory which departs from but does not depend on biological autopoiesis (Bailey, 1997). Another goal, it seems, is to account for the influence of the 'environment' (medium) of social systems in their dynamic changes.

6.3.1 Social Autopoiesis: Niklas Luhmann

Niklas Luhmann extends the work of Parsons (1970 and 1977) and others to address the complexity of modern society. For Luhmann, the integration between systems theory, communication theory and evolutionary theory offers a way to explain this complexity. Luhmann sees that it is essential to consider the existence of what he calls 'environment' for a system, and its influence in processes of communication and evolution[50] in systems like society.

In his work, Luhmann (1982; 1995a, and 1995b; Bailey, 1997) produces a series of concepts which constitute the foundation of his approach. These concepts bring particularly the idea of self-production and structural coupling that has been described in Maturana and Varela's work. These are immersed in Luhmann's understanding of society.

6.3.1.1 The Differentiation of society

For Luhmann, society is an Autopoietic system (1993). As such, it reproduces itself through a 'network' of components and the operations among them. These components interact through a basic operation, which constitutes the basic unit of analysis for Luhmann's theory: **communication**. Luhmann's main contribution is to describe autopoiesis as a mechanism which,

> refers to systems that reproduce all the elementary components out of which they arise by means of a network of these elements themselves and in this way distinguish themselves from an environment, whether this takes the form of life, consciousness or in the case of social systems communication. Autopoiesis is the mode of reproduction of these systems (Luhmann, 1989, p. 143).

For Luhmann it is essential to explain the existence of systems in terms of the difference they establish in relation to their environment. Using autopoiesis as a reproductive mechanism in social systems, he proposes a view of systems in society as Autopoietic:

> on the basis of these assumptions, we can conceive of system differentiation as a *replication, within a system, of the difference between a system and its environment* (Luhmann, 1982, p. 230, original italics)

It is through communication as an operation that allows the above difference between a system and its environment that a system continuously establishes its own identity. Communication for Luhmann is a *social* act. It is not merely an operation of utterance, but "...an independent Autopoietic operation which comprises three different components: information, utterance and understanding" (Bailey, 1997, p. 90). Information refers to the content of communication (What?);

[50] Evolution in Luhmann's view is not biological. He draws on the attempts to explain complexity of species to produce a similar but not complete account of the existence of different groups and systems

utterance is related to the form of communication and also includes actions (Who?, Why?, How?, Why now?); understanding is defined as the sense of meaning that communication generates (Luhmann, 1982 and 1995a). These aspects are distinctions made by subsystems. They determine what is information for them, how it may be embodied, and how it may be interpreted. This is the closure of Autopoietic systems (Mingers, 1995). Luhmann argues that communications are 'vanishing' elements of Autopoietic systems, hence for them it is necessary to keep producing 'new' communications in order to maintain their autopoiesis (Luhmann, 1993, 1995a and 1995b)

Society is also composed by subsystems which, have emerged through time; in society there have been processes of segmentation, stratification and functional differentiation (Luhmann, 1982). They correspond basically to the division of communications into 'equal' subsystems (many of the same type), 'unequal' subsystems (with different communication abilities) and functionally different subsystems (performing different tasks) (Luhmann, 1982). Subsystems select particular features within the environment of society, which correspond to their own environment. This means that any situations that are distinguished (considered as relevant) in society is 'shifted' to the level of subsystems where they are properly understood and managed.

Subsystems in society identified by Luhmann (1982, 1995a) in society are:

- Law
- Education
- Science
- Politics
- Economy

These subsystems can be best seen in the following diagram:

in society.

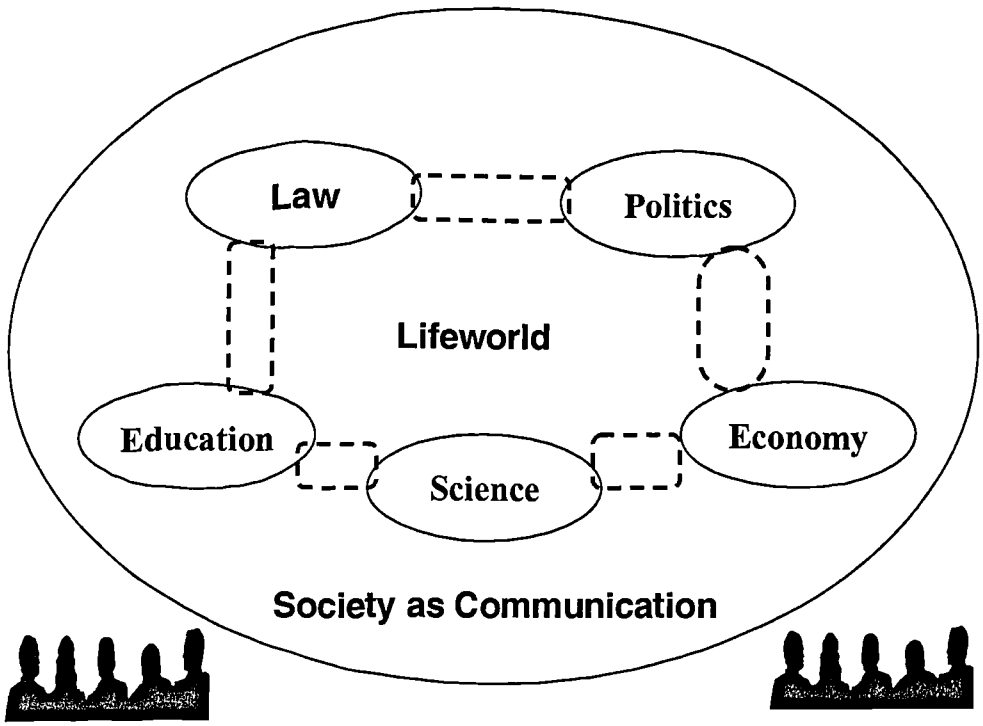

Figure 6.1. Luhmann's view of society in terms of subsystems, and the role assigned to people outside the system (Adapted from Mingers, 1995).

Besides these subsystems, there are other communications, which correspond to daily life of people. They correspond to the ones "...not specifically involved in subsystems — the communications of the 'life world' — the everyday world of action and communication" (Mingers, 1995, p. 146). In the figure, it is observed that humans as biological entities are placed outside society and its subsystems. For Luhmann (1995a and 1995b), people do not make part of the system of society, as will be explained later in this chapter.

6.3.1.1.1 Structural coupling in society

In Luhmann's account, subsystems in society are 'coupled' to each other in such a way that each subsystem considers others as part of its environment (Luhmann, 1982 and 1995a). Here Luhmann brings forth the concept of structural coupling created by Maturana and Varela. Subsystems interact via communications with each other in such a way that changes in one of them will affect other subsystems' external environments. This is structural coupling between subsystems. Using this concept, Luhmann is able to explain that subsystems can take the existence of the other systems for granted and thus "concentrate on their own tasks" (Brans and Rossbach, 1997, p. 426). With time, subsystems enhance their selectivity, increasing their understanding and differentiation of their internal and external environment, while maintaining communication with others subsystems.

6.3.1.1.2 Coding, irritation and resonance

According to Luhmann, in society and its sub-systems communications refer to past communications to produce new communications (Luhmann, 1982). Subsystems mentioned above 'filter' disturbances coming from their environments via a process of *binary coding;* this selects those communications that will be managed with communication-based responses. The way subsystems manage communications is by translating them into 'values' that they can understand and manage with corresponding actions (Luhmann, 1995a; Bailey, 1997). Values like 'illegal/legal', 'scientific/non-scientific', 'political/non political', etc allow subsystems to distinguish new phenomena to which they are blind before codifying them. Codifying also allows subsystems to manage these phenomena using previous communications and to maintain their difference with their environment.

To go deeper into the nature of structural coupling and coding in society, Luhmann (1982 and 1995a) establishes the concepts of *irritation and resonance* to describe a possibility in which subsystems react to situations (related for example to ecology or the welfare state). Irritation is a perturbation that certain phenomena can cause in one subsystem. It triggers communications in that subsystem. Depending on the effects that a subsystem generates, the phenomena distinguished may trigger also communications in other subsystems. This is called resonance and is referred to the chain-reaction that an irritation causes in one or various subsystems. Resonance is based in binary coding in a way that "Every differentiated functional

system [subsystem] can create resonance only within its own code" (Bailey, 1997, p. 96, my brackets) and from there communication between subsystems takes place. When a change takes place in society, Luhmann (1995b) seems to prefer this situation of resonance to account for the possibility of having co-ordinated action between subsystems once the need for change is 'coded' in every subsystem.

6.3.2 The role of individuals in interaction

In Luhmann's account of society, communication between subsystems and internal communication at the level of each subsystem constitute the basic elements for the self-production of society. The role assigned to people is related to their participation in the environment. This indeed has consequences for possibilities for actions at various levels that draw on the ideas presented so far from autopoiesis. As Luhmann (1982) has said:

> from our point of view, these (the people) are *external* variables (to society and its subsystems) because persons as concrete psycho-organic units belong to the environment of systems of social communication. Only communication variables belong to *internal* processes of social systems. Sufficient population size has to be recognised as an important condition for the number of communicative acts (Luhmann, 1982, p. 247, my parenthesis).

Luhmann (1995a and 1995b) argues that the level of complexity of society is such that analysing individuals and their interactions will not be enough to explain such complexity. As is also said by Luhmann:

> we cannot rely on the concept of (human) action because this depends too much on the process of attribution and constantly sees the individual as a determinant actor. Communication, on the other hand, is inherently social and thus it follows that society is composed of communication among human beings (Luhmann, 1993, p. 531).

The role of individuals described by Luhmann seems also to obscure the possibility of their agency for change in society outside the interactions that they 'develop' to maintain the autopoiesis of certain subsystems. For example people (individuals or groups) concerned with the future of society raise issues which have different implications (legal, economic, educational). Will they have to subordinate these to

existing communications? What if they have a degree of agency that allows them to convince different people? A question arises about the participation of individuals in society.

The view of Luhmann (1983,1995a) does not give much hope to these people, as for him any change depends on the coding of situations by subsystems; nor can a change in society be achieved without the causing of resonance among different subsystems. Luhmann (1993) is aware of the need to gather knowledge coming from various disciplines to address a situation, given the lack of enough knowledge and the complexity exhibited by subsystems in modern society. However, it is not clear how he has visualised the way in which it can be done without considering individuals as components of subsystems and society in general. About the role of people in Luhmann's argument, Mingers (1995) says:

> without human activity there would be no communication...with Luhmann the observer is lost completely in favour of the observation. One communication may stimulate another, but surely, it does not *produce* or *generate* it (Mingers, 1995, pp. 149-150, original italics).

Furthermore, in his focus on describing society, Luhmann has not addressed the possibility of encountering conflict among groups of people either. For Mingers (1995) an understanding of collective phenomena like the above example using Luhmann's ideas presents difficulties, as different groups emerging from interaction (not necessarily subsystems) but groups conflicting with each other (even within the same subsystem) may not be recognised in Luhmann's view of society. For Mingers (1995), the boundaries of analysis set up around subsystems are not clear in their definition. These boundaries do not seem to emerge as a product of human interaction. This is opposite to the idea of Maturana and Varela of distinguishing domains of actions as arising in the co-ordination of action or mutual respect in language (Maturana and Varela, 1987). It is possible that Luhmann has preferred to follow a path of objectivity without parenthesis in the setting up of boundaries about systems and has imposed a degree of interaction of people within these systems, which they might not follow entirely as they belong to different domains of interaction.

As was said in the previous chapter (Chapter five), in autopoiesis, individuals take part in different domains of action or subsystems, opening different possibilities for interaction and communication among themselves or their collectives (Maturana, 1998a and 1998b). This situation is not fully recognised in Luhmann's account (Mingers, 1995). Some of the communications in subsystems may be influenced by this multi-participation of individuals and groups in various domains of action. Although the interaction between subsystems is acknowledged by Luhmann, considerations about individuals being those who mediate between subsystems do not seem to be considered important. This indeed would undermine the possibility of the autopoiesis of individuals as a condition for collaboration and mutual respect. It seems that Luhmann's perspective needs an account of the purposes that individuals and groups have in society for interaction, and the difficulties that people face when trying to interact with each other at different levels of society (individual, group, etc).

In short, Luhmann's approach offers a view of the potential constraints and mechanisms that human interaction will have in society if this is considered as composed by Autopoietic systems. Luhmann offers an interesting *language* to discuss the limitations that may arise in organisations and institutions dealing with new situations (Bailey, 1997; Brans and Rossbach, 1997). However, there is the need to keep the sense of awareness about interaction that individuals have as Autopoietic systems, and the possibilities that this awareness gives of promoting change and improving the conditions of the way of life of individuals in the information society. If society as a whole is considered as developing in such a way as explained by Luhmann, there is the risk of providing an explanation that follows the path of objectivity without parenthesis. No other explanation can co-exist with this one nor can other accounts about improving society be given. Individuals would find themselves limited in their attempt to promote change in society.

6.4 The Use of Autopoiesis to Challenge Collective 'Blindness'

Some other authors have used the ideas of autopoiesis to account for phenomena in which the term 'social' resembles a collective group of individuals and hence autopoiesis is used in phenomena like organisations[51]. Autopoiesis becomes a referential framework in which interactions are 'observed' in a context, with the possibility of including the observer in it and being critical about phenomena of self-production of groups[52].

Taking this idea of self-production further, Gregory (1996) sees that it can be used in a critical way. In her research on evaluation of organisational performance, she sees that an organisational culture may be self-productive:

> indeed, it may be said that it is culture that, through the self-production of its component parts of norms and values, distinguishes one organisation from another (Gregory, 1996, p. 571).

Gregory (1996) recalls the work of Robb (1989a and 1989b) who has seen that it in principle, it would be possible to see organisations as exhibiting some 'Autopoietic' behaviour. His idea is to consider that not individuals but some of their 'properties' can be considered as components of an Autopoietic system (organisation). Robb uses autopoiesis to address the following phenomena in organisations:

> the problems I perceive are those concerned with the emergence of organisations which have little regard for human concerns, which some times appear to escape the control of those ostensibly responsible for their management and control, and which induce in those associated with them behaviour which serves no human purpose, not even that of the human actions (Robb, 1989b, p. 354).

What Robb seems to imply is the need to address the *blindness* of organisations to certain concerns through time despite some attempts (including the researchers' ones) to address these. This claim is similar to Gregory's (1996) who sees that a view on the potential autopoiesis or self-production in organisations may "help us to explain why the results of evaluations are commonly not acted upon" (Gregory,

[51] The nature of 'social' for Maturana and Varela (1987) implies interacting under the emotion of mutual acceptance. This might not happen in organisations (Maturana, 1988).

1996, p. 574). These ideas express the possibility of using autopoiesis to challenge various assumptions taken for granted which are reproduced at the expense of other possibilities for action.

However, the use of autopoiesis could not be limited to challenging these assumptions. As Mingers (1989) has said, human beings and their collective phenomena cannot be reduced to exhibit certain properties or concerns that are accepted in just one domain of action[53]. Human beings need to be considered as immersed in multiple concerns that are lived in action, flowing from one to another, with the possibility of interacting with others to discover potential blindness and engage in new domains of action where coexistence may be possible. This claim rescues the importance of considering human beings as interacting with others in different realities whose existence should not be left out from critique.

The above sense of awareness gives individuals (including researchers) more scope and at the same time more responsibility for their actions. Individuals should be aware of the possibility of self-producing continuously some concerns at the expense of others. There is also the possibility of co-creating with others domains of action guided by certain concerns. These awareness and possibilities should inform the practice of ICTP, as there are different issues that arise in a process of inquiry that seem to be left out when existing methodologies are used.

6.5 Conclusions

In this chapter, three applications of autopoiesis have been reviewed. One in the realm of information technology design; another in the realm of sociology; and an application in the analysis of organisational phenomena. In the applications reviewed, there has been an emphasis on different elements for analysis and action (self-production of communications, norms or conversations for commitment, design of computer tools for improving co-ordination, etc). Although important, this emphasis could obscure the need to listen to individuals in the issues of concern that they raise at different levels of interaction (individual, collective, and institutional). There is still the need to rescue from autopoiesis the idea of the

[52] This connotation of self-production seems to depend on the view of an observer.
[53] Precisely Mingers (1989) is addressing Robb's view (1989a) on how to distinguish if an organisation is Autopoietic, by reducing human participation to certain actions required in an organisation to maintain

condition of human beings as being immersed in different domains of interaction in which they live certain concerns with 'others' and about 'others'.

Also, there is the need to rescue the possibility for human beings as Autopoietic systems of exerting their agency in their interaction with others. If human beings consider that they want to promote a change as a disposition for action and action, this should be contemplated as a possibility for change in different domains of interaction in which human beings are immersed. Agency of human beings, although it should be put in context, should be seen as important in the use of autopoiesis to address situations that demand reflecting on improvement for society as a whole.

In the next chapter, a methodological framework based on the use of critical systems thinking is proposed. This will be used to intervene in a process of ICTP. The framework includes the main ideas gathered from autopoiesis and complements them with the ideas of another systems theory: it is the systems theory of boundary critique.

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it. This claim makes sense from the point of view of rescuing human beings as participant in different domains of action.

Chapter 7: Towards a Framework to Address the Situation of ICTP in Practice

7.1 Introduction

Having explored the ideas of autopoiesis and its applications, the 'strategic' view for the development of the information society has been enriched with awareness on what human interaction is. This understanding has been elaborated from a perspective in which different concerns from people can be identified in interaction as belonging to the domains of action in which individuals take part. The perspective reinforces the idea of being more inclusive in a process of planning like ICTP, by enabling people to raise different concerns which, are related to the improvement of the way of life in the information society.

Now the 'strategic' view also needs to be critical. In the realm of ICTP it was also noticed that practitioners have the opportunity to raise issues that they consider have ethical implications. In the information society, issues need to be considered as having wider implications not only for those involved in developing initiatives and plans related to information technology, but also for those who might be affected by the consequences of initiatives. Practitioners also need to be critical about themselves, their role in interventions and their own ethical concerns.

In this chapter a critical ingredient is added to the strategic view of ICTP within the information society. Following one of the streams of development of Critical Systems Thinking, the ideas on autopoiesis are complemented with the ideas of the systems theory of boundary critique (Churchman, 1979; Ulrich, 1983; Midgley, 1992b, 1996, 1997 and 2000). This theory provides grounds for the raising of issues that have ethical implications not only for information-based initiatives but also for the development of society. Boundary critique enables practitioners to structure debate around issues of concern and allows participants within this debate to discuss with participants the consequences of their actions.

The chapter is developed as follows. First, a concern for 'others' is brought forth from the ideas of autopoiesis. In this concern the existence of multiple realities is acknowledged, and the need to promote co-existence between individuals in the design and implementation of initiatives in planning. Then the ideas of boundary

critique are presented. A synergy between autopoiesis and boundary critique is proposed and translated into two modes of inquiry and methodological guidelines that inform the practice of ICTP.

7.2 Concerns for 'Others' in Autopoiesis

As was said in chapters five and six of this thesis Maturana (1988) and Maturana and Varela's (1992) understanding of reality (realities) brings different domains of action in which a braiding of emotioning and reasoning which specifies who is an 'other' in each of these domains. Maturana and Varela (1987) argue that human beings are not exclusive by nature. Identified exclusion in a domain is 'justified' by using reason. This exclusion involves a kind of *blindness* of those members of a domain in terms of not seeing or being concerned about others that do not take part in the conversations that constitute a domain. Blindness also involves 'not seeing' different issues or concerns that are undermined to the benefit of the preferred solution. Ethical concerns about others are distinguished in language when breakdowns in the co-ordination of actions are distinguished in a domain of interaction (Maturana, 1988).

For Maturana (1998a) the above phenomenon of blindness can be addressed from a perspective that considers the consequences that the Autopoietic condition of individuals has for society as a co-constructed project of conversations (Maturana, 1998a). If the path of objectivity within parenthesis is accepted, individuals should be critical of the type of society they and others want (Maturana, 1998a). Maturana argues that as Autopoietic systems, individuals have the opportunity to co-create and develop a project of society in which everybody could be respected. The important question to ask about society is for Maturana: **How do we want to co-exist (with others)?** (Maturana, 1998a). The acceptance of others as legitimate others in co-ordinated action becomes essential for the maintenance and betterment of society as a whole.

To the above possibility of promoting a more 'inclusive' interaction in society and its different domains of action, some questions arise:

- How to address different concerns of society in a process like ICTP?
- What should be the scope of planning processes in society? How to establish limits to the inclusion of people and their concerns?

- What should be the role of an ICTP practitioner as observer of society in a process of inviting others to 'see' concerns brought by others?
- What if different groups or individuals do not want to be 'included' in the process of planning for improving society?

In the social sciences, some of these questions have been addressed within the domain of **Critical Systems Thinking (CST)**. As was said in chapter four of this thesis, CST stems from the need to address certain themes identified as relevant towards improvement (Schecter, 1991; Flood and Jackson, 1991b; Jackson, 1992; Midgley, 1996). Recently, CST has been better understood as a continuous dialogue between systems practitioners in their attempts to provide theoretical and methodological frameworks that inform practice towards improvement in society (Midgley, 1996).

One of the streams of development in CST is based on the idea of improvement based on systems boundary critique (Churchman, 1968 and 1970; Ulrich, 1983; Midgley, 1992 and 2000). As it will be presented, this idea opens up interesting possibilities for critique and methodological complementarism in the use of systems thinking approaches and methods. It will also open a possibility of complementing the ideas on autopoiesis with critique on boundaries that have emerged in planning, and it will derive an awareness for practitioners about the ethical consequences of any design like ICTP.

To begin with this opening up of possibilities, the systems notion of boundary critique will be presented.

7.3 The Systemic Notion of Boundary Critique

Midgley (1992, 1995, 1996, 1997a,b and 2000) and Midgley et al (1998) have followed and further developed the work of C.W Churchmann (1968, 1970, 1971, 1979) and W. Ulrich (1983, 1991, 2000a and 2000b) in systems thinking. They have defined systems-based frameworks for social improvement. For Midgley (2000), improvement means going *beyond* what is taken for granted by individuals when improvement is designed in any process in society, looking at the implications that are derived from this type of inquiry. Going beyond any design also implies

consideration of the implications that design has for different groups in society, and the ethical issues that arise when decisions are taken.

Midgley uses Churchman's (1970) distinction of improvement related to the use of boundaries. For Churchman, the problem of improvement can be seen in terms of boundaries as distinctions that emerge in the stage of analysis of any social design. A boundary is a social construction (from individuals or groups) that defines the limits of what is considered pertinent knowledge to a situation (Churchman, 1970). Here the use of the term 'social' implies that a situation involves people as designers and some 'clients' (people benefited, people affected). Something that appears to be an improvement may not be so if the boundary of what is privileged in terms of issues and people to be included in design is 'pushed out'. Churchman (1970 and 1979) argues that as much information as possible should be 'swept in' to definitions of improvement.

In CST, the use of the notion of a system as something bounded implies accepting that a system *is a social construction that defines boundaries about knowledge to be considered as relevant.* Therefore it is essential to consider the inter-subjectivity (interaction to construct a reality) that a system embraces. The nature of a systems boundary also specifies who is considered a decision taker. If the boundary of a design is pushed out, the limits of privileged knowledge and people (including decision takers) may be pushed out in order to include others.

For Churchman (1979), pushing out boundaries of a design means testing the ideas 'against our enemies'. This entails being able to see opposite views that emerge about a social design and learn from them. It may be the case that as a result of debate, designers and other people involved are more capable of dealing with specific issues of concern. As individuals involved in design, if we survive such debate with rational argumentation, we may then pursue improvement (Midgley et al, 1998; Córdoba et al, 2000).

The idea of a critique of boundaries has been taken further and has been supported by new philosophical grounds. Ulrich (1983, 1991, 1996, 2000a and 2000b) has followed the work of Churchman and takes the idea of rational argumentation further. In terms of systems boundaries for Ulrich critique in social design focus around the

following question: h*ow can people rationally justify the boundaries they use?*[54] (Ulrich, 1983). Ulrich aims to challenge social designers and experts. He intends to put them in a position in which they may find themselves caught in their own preferences and arguing that these are 'rationally sound' (Ulrich, 1983). In this situation, other individuals can argue against them on the basis that their judgements should be based on the collective use of reason.

In terms of systems boundaries, the above challenge implies, for Ulrich, testing out boundaries of a design as judgements which, involve people who are benefited, excluded and involved in such design (Ulrich, 1983). This testing should involve as many people concerned as possible in the form of designers, decision takers, clients and those affected by the outcomes of design.

An important aspect of Ulrich's thinking about boundaries is that a *boundary judgement and a value judgement are intimately linked.* As Ulrich says when talking about boundary judgements made by 'experts':

> the necessity of boundary judgements can be intuitively grasped by every layman: since no one can include 'everything' in his maps or design, he cannot help presupposing some boundaries. It is equally understandable to every citizen that such boundary judgements depend on values or interests rather than on theoretical knowledge alone (Ulrich, 1983, p. 306).

The above means that a social design is a value-laden effort, and designers put their own values when taking decisions; the consequence is that values determine the boundaries that are established in relation to what is privileged and who is considered as a participant of a design. Hence, debate about boundaries in inquiry and design becomes an **ethical** debate in relation to inclusion and exclusion of issues and people, bringing forth different ethical stances to debate. Different groups of individuals should take part in a debate characterised by the possibility of including various groups of people.

To structure debate about boundaries and give people equal opportunities of taking part in it, Ulrich (1983) proposes a process of inquiry in social design. It is organised methodologically in a list of twelve questions that define a dialectical process of

[54] Ulrich (1983, 2000a and 2000b) has provided a full theoretical account that supports the argument of the use of practical reason to justify decisions taken in social design, an account that also relates the

reasoning collectively. This process is contained in Ulrich's systems approach called *Critical Systems Heuristics (CSH)* (Ulrich, 1983). The questions aim to foster reflection about what should be done and who should be included regarding a situation of design as a system S with boundaries. The questions are (Ulrich, 1991, p. 108):

Who ought to be the *client* (beneficiary) of the system S to be designed or improved?
What ought to be the *purpose* of S; i.e. what goals states ought S be able to achieve so as to serve the client?
What ought to be S's *measure of success*? (or improvement?)
Who ought to be the *decision taker,* that is, has the power to change S's measure of improvement?
What *components* (resources and constraints) of S ought to be controlled by the decision taker?
What resources and conditions ought to be part of S's *environment*, i.e. should not be controlled by S's decision taker?
Who ought to be involved as *designer* of S?
What kind of *expertise* ought to flow into the design of S; i.e. who ought to be considered an expert and what should be his role?
Who ought to be the *guarantor* of S; i.e. where ought the designer seek the guarantee that his/her design will be implemented and will prove successful, judged by S's measure of success (or improvement)?
Who ought to belong to the *witnesses* representing the concerns of the citizens that will or might be affected by the design of S? That is to say, who among the affected ought to be involved?
To what degree and in what way ought the 'affected' be given the chance of *emancipation* from the premises and promises of the involved?
Upon what *worldviews* of either the involved or the affected ought S's design be based?

In the process of inquiry, the above questions can be asked in two modes: the 'is' mode and the 'ought' mode as a comprehensive way of reasoning[55]. The first one refers to an inquiry about how a situation is currently perceived by different groups of participants. The second one refers to how a situation should be designed if improvement is pursued as an ideal in practice. Methodologically, either of the

use of systems boundary critique to help in the application of practical reason to debate.

[55] For Ulrich (1983), both theoretical reason and practical reason should be used. Theoretical reason refers to the 'what is' about reality whereas practical reason refers to the 'what ought to be'.

above modes can be used in inquiring about a social design and foster critique and awareness on the conditions that make a design inclusive for different groups in society[56].

The use of boundaries in CSH constitutes also a way of establishing accountability in decisions taken. By employing polemically boundary questions (in the 'is' and 'ought' mode), CSH becomes a form of 'embarrassing' those decision-makers when they are not able to justify their decisions with the use of reason in front of others (Ulrich, 1983), as they are grounded in personal preferences. In order for decisions to be accepted by those involved or affected by the judgements, CSH promotes a form of inquiry that guarantees the consent of these groups. With CSH, Ulrich aims to equip those groups of people involved or affected by decisions with a form of critique that is grounded in the use of collective reasoning. This critique aims also to question the judgement of the so-called experts in design[57], by rendering all people involved 'experts' in collective reasoning.

The above type of rationality from critical systems thinking (CST) may come to help in dealing with the phenomenon of 'blindness' about concerns in society mentioned at the beginning of this chapter. It may help people to realise the existence in interaction of different boundaries as collective constructions made with others. It could do so by helping to uncover the boundaries that appear in any explanation or argument about how things are or how they should be in any design in society.

Regarding awareness for practitioners, CSH points in the same direction as autopoiesis. The sense of responsibility given to observers by the path of objectivity within parenthesis can be reinforced with the idea that boundary definition has ethical consequences for those included and excluded in a design. Both CSH and autopoiesis share a concern with the consequences of adopting or privileging certain domains of actions with others. This concern is related to the existence of 'others' in any interaction aimed at improving the way of life in society with design.

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[56] For Midgley (1997b) Critical Systems Heuristics (CSH) in the 'is' mode is more appropriate to foster the clarification of certain values among a group of participants involved in a design. CSH in the 'ought' mode seems to be more adequate as a method to foster debate, negotiation, consensus formation and compromise.

[57] About CSH Ivanov (1991) says: "affected citizens can secure for themselves an advantage of argumentation by imposing the burden of proof upon the involved expert who may then be embarrassed for being unable to prove the superiority of his assumed normative judgement" (Ivanov, 1991, p. 44).

Although the argument exhibited by CSH offers an alternative for participation and involvement of people in decisions concerning social design, an important issue arises regarding participation of people. People (including decision takers) might refuse to enter into debate. Ulrich (2000b) suggests that in such a situation a redefinition of the boundaries of 'who else' should be included in decision-making process should be made in order to secure a more effective and participative form of debate. Ulrich seems to foster a type of action aimed to make decision-makers realise the limitations of their judgements and to get involved in planning. Nevertheless, this suggestion is not clear regarding how to do this.

In relation to the above, Midgley (1997b) has argued that in CSH it is assumed that debate about social design is open for inclusion and participation of people through a form of collective reasoning. This may not happen in practice. Midgley (1997b) asks: 'why should those with power ever want to listen to the powerless?' For Midgley, it is necessary to explore the underlying political and economic forces in a situation that have resulted in a closure of debate. This demands going beyond CSH to promote action to raise (via the exchange of information or political campaigning) issues of concern at different levels of interaction in society (Midgley, 1997b).

For Ivanov (1991), a similar problem arises with CSH in practice. He is also concerned with the consequences that the use of CSH will have in a context where other forms of reasoning and deciding are used. Ivanov (1991) says that on the face of CSH, decisions-makers could argue that it is very expensive to secure consent of all groups of people involved and affected in a decision. Or they might not feel embarrassed by the content of their decisions. For Ivanov (1991 and 2000), CSH lacks enough depth of inquiry into the ethical questions that debate between individuals will generate[58]. Although CSH deals with the justification 'break-offs' that appear in social design, CSH is grounded in the need to achieve a form of communicative competence in interaction, which is insufficient to deal with some human aspects like emotions and inner values of individuals. Ivanov argues that critique conducted in human interaction should go beyond the realm of communication and inquiry about the ethical and religious aspects of decisions or issues that emerge within a process like planning (Ivanov, 1991 and 2000).

[58] For Ivanov (1991), this has to do with the foundation of CSH in Kantian thought in relation to ethics. According to Ivanov (1991), Kant separates reasoning from ethics, making a process of ethical

From the above, it follows that the position adopted by Ulrich in CSH seems to rely on the use of a situation of dialogue or communication in which people are able to contribute to a debate by exposing their concerns in a straightforward manner. This position does not seem to consider fully the context of relations in which dialogue takes place, nor does it consider the possibility of people having a different disposition for action from collective reasoning. The above criticisms of CSH point to the need of going beyond argumentation and exploring some issues that may inhibit (or enable) the making of a debate in a particular context of relation when using CSH.

For the practice of ICTP, it has also been mentioned that it becomes important to explore the context in which concerns from the way of life of people emerge and also to explore the consequences that dealing with these concerns will have for the wider society. This makes the use of CSH important in relation to the context of ICTP.

In terms of autopoiesis, it may be said that people coming from different domains have different ways of reasoning and deciding as a way of living in these particular domains. By fostering 'collective reasoning', CSH seems to be proposing to establish a new domain of interaction in design based on consent and pragmatic reasoning (Ulrich, 1983) as a set of operational coherences that aim to guarantee critical inclusion of different groups of people. However, in CSH itself there does not seem to be a way of convincing those with having different explanatory paths (like experts) to enter into this domain and accept it.

In both modes of CSH, if boundaries are going to be distinguished, it seems essential to understand the context in which interactions between people take place and the opportunities and limitations that this context offers for boundary critique. About the latter, it also seems essential to identify different boundaries in relation to the interactions between individuals in a context of relations.

7.4 Systems Boundaries in Context

Midgley (1992, 1997a, and 2000) and Midgley et al (1998) have followed the work of Churchman and Ulrich. Their interest is also in looking at what happens when different groups of individuals privilege different boundaries about a situation.

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discernment unachievable by logic means. This idea is followed in CSH when categories of ethical 'reasoning' are proposed to conduct debate about the consequences of actions.

Midgley (1992) argues that as values and boundary judgements are interrelated, the situation of different groups taking part in a social design exhibits two types of boundaries; one *primary and one secondary.* The primary refers to what is privileged by one group in a social design; this involves issues and people that should be included regarding any decision to be taken. The second boundary refers to other elements that are distinguished as relevant by another group. Between the two boundaries there are *marginal* elements which, seem to be included in the secondary boundary (made by a group) but excluded from the primary one (made by another group) (Midgley, 1992).

Midgley (1992) argues that when there is a conflict between two boundaries bringing different ethical judgements on what should be privileged (it may be different concerns), the situation is stabilised by the imposition of either a *sacred* or a *profane* status on those marginal elements. This has to do with valuing elements contained by the boundaries: "the words 'sacred' and 'profane' mean valued and devalued respectively" (Córdoba et al, 2000, p. 207). When a profane status is imposed over the marginal elements, a primary boundary is privileged. When a sacred status is imposed, the secondary boundary prevails. This stabilisation does not necessarily imply consensus achieved between groups.

Furthermore, Midgley (1992) has argued that the distinction of boundaries (primary, secondary) can be observed by looking at social rituals in which these boundaries are perpetuated. The type of behaviour observed is one which 'contains certain stereotypical elements that involve the symbolic expression of wider social concerns' (Midgley, 1992). With their behaviour, groups in society privilege the elements that they consider are elements of their concern, and this has consequences for other groups. What Midgley is also implying is that boundaries, as socially constructed systems, do not exist in isolation. They represent concerns already present in wider society (Midgley, 1992), and their privileging then has wider consequences.

For example (from Midgley, 1992), it can be argued that employment should be the concern of businesses and government institutions. These organisations care for those 'employed' and impose a sacred status on them (they receive benefits and pension, get access to loans, etc). There are however groups of unemployed people who also demand to be treated fairly and receive different benefits. There is a primary boundary (privileging the employed) and a secondary one (privileging the unemployed). The groups of unemployed people are recognised in their status of

'profane' when they receive unemployment benefits and when they 'sign on'. The primary boundary is stabilised as organisations continue caring for those employed, hence the employed receive the status of 'sacred' and this primary boundary is dominant over the secondary. Both boundaries represent concerns of the wider society in which groups are immersed, and privileging one of them (employment, unemployment) has impact for different groups in society.

The situation of primary and secondary boundaries related to the 'sacred' and 'profane' elements of design can be visualised in the following diagram:

PRIMARY AND SECONDARY BOUNDARIES

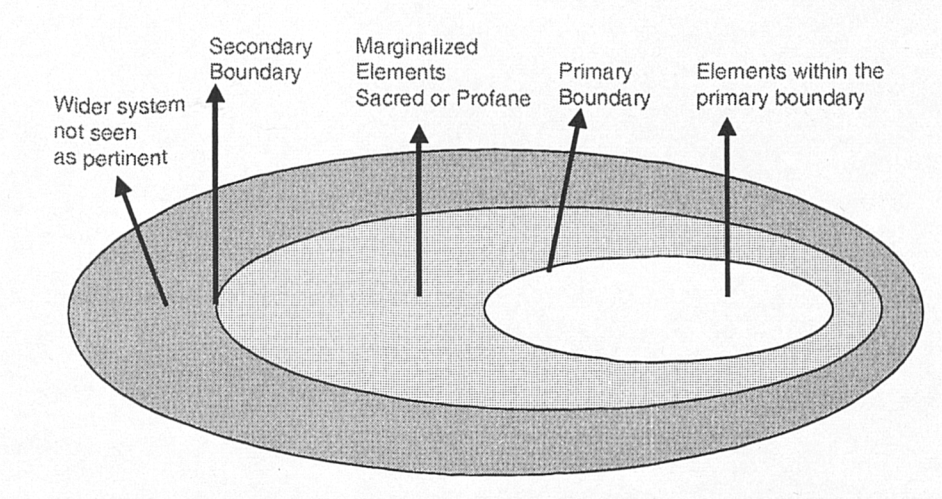

Figure 7.1. Boundary Critique and the Existence of "Sacred" and "Profane" elements (Midgley, 1992).

In the above figure, it can be observed that there are 'marginal' elements, which lie between the primary and secondary boundaries. They take the status of 'sacred' or 'profane' when any of the boundaries is privileged. What can be also observed in the figure is that there are elements that lie outside the boundaries which are considered not pertinent for a social design. In this way, the notion of boundaries sets limits to any inquiry into social design.

With the above distinction of boundaries, what Midgley (1992) and Midgley et al (1998) have also emphasised is the existence of different *ethical* stances derived from the privileging of boundaries. As boundaries relate *values* of who needs to be

included and *what* needs to be included, in the process of privileging one boundary (either primary or secondary) an ethical stance inevitably arises with the boundary. This indeed has consequences for social design, as it invites people involved to recognise the stance adopted, *and to accept the ethical consequences* that emerge for individuals and others by the boundary privileged. A sense of responsibility is distinguished in the use of boundary critique and marginalisation for those who take part in the design, considering also consequences for others. This sense of responsibility will be taken further when proposing a synergy between autopoiesis and boundary critique later in this chapter.

The argument of Midgley (1992, 1995, 1997a) and Midgley et al (1998) adds important elements to the discussion of a strategic view of the information society and of approaches dealing with inclusion, participation and critique. It establishes a way of inviting people to recognise the boundaries of their explanations about a situation and also acknowledges the existence of elements in design that are privileged by some groups and left out by others. This gives room for the emergence of different boundaries that people, including practitioners, may have. From the identification of boundaries in an intervention, practitioners could invite people to co-exist with each other by recognising the possibility of new domains of action in which boundaries established provide room for this co-existence and for different types of action. In this respect, the use of boundary critique could support the claim for co-existence proposed by Maturana and Varela (1987).

However, when acknowledging the stabilisation of one boundary over another, Midgley does not refer necessarily to this as happening by consensus between individuals or groups or by the use of a particular way of reasoning (Midgley, 1992). As said before, the way boundaries are ritualised in social behaviour is particular to each context (Midgley, 1992). Practitioners should be aware of this situation, bearing in mind the conditions of a context in which boundaries are distinguished and privileged by people. However they should strive to challenge the primary boundaries they encounter in intervention by bringing into debate the thinking of those marginal elements which appear when primary boundaries are pushed out (Midgley, 1997; Midgley et al, 1998).

Furthermore, Midgley (1997a) has extended the critical role of practitioners in relation to what to do in a particular context. This extension regards the existence of possible

power-knowledge 'formations' in relation to boundary judgements, as it will be seen in the next section.

7.4.1. Power-knowledge formations in boundary critique

One of the areas in which Midgley (1997a) has extended the understanding of boundaries in society in relation to individuals is the exploration of power-knowledge formations. For Midgley, when a systems practitioner is conducting an intervention in a particular context, he/she becomes inevitably immersed in a set of *power-knowledge* formations that frame the purpose of interventions and the actions that are 'allowed' by them (Midgley, 1997). Power-knowledge formations can be understood as a set of practices that define the 'right' or 'true' action by individuals and groups in the context in which they are immersed, and society in general. These formations also affect the ethics adopted by individuals by defining what should be done about themselves and others.

Midgley relies on the ideas of Foucault (1976,1980) [59] to argue that identity of subjects (individually or collectively) has been *shaped* by power-knowledge formations. At the same time subjects contribute to the re-creation or modification of these power-knowledge formations when producing knowledge[60]. This ensures that that various 'knowledges' about the truth in society or the identity of individuals and groups[61] are considered different judgements, which are based on different standards that render judgements 'true'. When different 'truths' are in conflict, what is accepted as true is the result of a confrontation between forces, each one trying to deploy its discourse as the one valid in society.

Because of the above, Midgley takes a critical stance on board for practitioners of CST. They, like anybody else in an intervention, are inevitably 'framed' within a set of frameworks of truth that define their identity and that of others. Practitioners

[59] Although I had explored this area before defining the methodological framework and conducting the intervention, I did not fully grasp its relevance until my experience at Javeriana University was finished. Because of that, in this chapter just a brief understanding of it is mentioned. A more detailed account of the notion of power from Michel Foucault will be presented in chapters ten, eleven and twelve of this thesis.

[60] A more detailed description of subjects generating knowledge in Midgley's account of mixing methods and developing systemic intervention will be presented in chapter twelve of this thesis.

[61] Midgley (1997a) argues that "if one widens the boundaries of exploration, one is likely to sweep in new forms of knowledge. These in turn allow the exploration of different possible identities for the people involved [in a situation]...So, exploring boundaries allows for the consideration of different forms of knowledge and different forms of social identities" (Midgley, 1997a, p. 282, my brackets). With this, Midgley is exploring the possibility of developing boundary critique about the identity of subjects. This will be explored further in chapter twelve of this thesis.

should promote reflection on the possibility of re-creating identity in individuals and collectives. This should be done in the same way that their identity has been created, e.g. by using power-knowledge formations, but this time in a more positive way by taking action that frees people from practices imposed on themselves and the way they relate to others (Midgley, 1997a). The process is continuous, as when adopting a different stance people may be aware of different frameworks (formations) within which they are constituted as subjects of knowledge.

With this description of power-knowledge formations, Midgley gives the possibility to practitioners of extending their critique to uncover (when possible) different power-knowledge formations that influence the definitions of actions. This process should be made according to the possibilities given in a context and the need to frame critique in relation to the existing power-knowledge formations in a context. In this respect, Midgley says about boundary critique:

> one thing I must stress here is that critique based on boundary exploration *does not* free people from the effects of power. It simply gives people more *scope* to judge who they are, what situation they are in, and how they should act (Midgley, 1997a, p. 283, my italics).

The above seems to point to an issue which could be seen as important in influencing and being influenced in the process of boundary critique. It is the existence of power as a concept, which allows identifying power-knowledge formations; individuals cannot escape but change them. Dealing with this concept for systemic intervention will be the subject of the section three of this thesis (chapters ten, eleven and twelve). For now it suffices to say that the concept of power could offer more *scope* for critique and action as it has been highlighted above.

The work of Midgley in boundary critique and power-knowledge formations (Midgley 1997a) has been integrated into a broader research programme that he has called systemic intervention (Midgley, 1997a and 2000). This is detailed as follows.

7.5 Developing Systemic Intervention

Based on the idea of systems boundaries, Midgley defines *systemic intervention.* It means purposeful action by a human agent (individual, group[62]) to create *change* (Midgley, 1997a and 2000). This action is taken within a context in which knowledge[63] is generated. Knowledge generation can be seen as a continuous process of boundary critique (this is an action in Midgley's understanding), where any action becomes a continuous process of reflection on boundaries (primary, secondary). Reflection on boundaries allows foreseeing ethical consequences about actions privileged by knowledge considered as pertinent to a situation (Midgley, 1997a and 2000). This reflection also involves making choices between theories and methods to guide action and also taking an action for *improvement* regarding the boundaries that appear from choices.

In systemic intervention, Midgley argues that is possible to see how different theories, approaches and methodologies that have been used in the dialogue in systems thinking define —in practice— *certain boundaries that influence action* (including judgement as action) (Midgley, 1997a and 2000). He argues that in a context of intervention there are different types of relationships between researchers and participants in a problem situation, which generate different boundaries in relation to the knowledge that is pertinent to include in such intervention. Boundaries bring different inclusions of subjects and objects of knowledge (primary and secondary), as well as marginalisations (Midgley, 1992 and 1997a). Debate should be fostered continuously in relation to the boundaries that appear, and consequences of adopting different boundaries should be explored.

For the practice of systemic intervention, Midgley (1990 and 1997a) has departed from the idea that simple choice of methodologies is not sufficient to address the complexity of different situations. Midgley distinguishes between methodology and method. A *method* is a sequence of techniques operated in a sequence or some times in an iterative way to achieve a given purpose. A *methodology* is a set of theoretical principles that guide any intervention by justifying the use of certain methods (Midgley, 2000). When addressing complementarism, Midgley prefers to think in terms of the design of *methods* (sequence of techniques) rather than in terms

[62] This will be better detailed in chapter twelve of this thesis.
[63] The latest account of systemic intervention of Midgley (2000) gives more detail about how knowledge is generated. This will be explored in chapter twelve of this thesis.

of a methodological choice. For Midgley, understanding a problem situation involves doing it in terms of a series of interrelated research questions, which can be addressed by using a different method or part of a method (Midgley, 1990 and 1997a). In a systemic way, the resulting method becomes more a 'synthesis of methods', or a whole system of methods to tackle a situation as a whole; a situation is seen then as a set of interrelated research questions[64], including those of identity (individual, collective). Methods are then complemented with each other, addressing different issues of a situation and bearing in mind the relationships between issues[65].

Methodologically Midgley (1997a) proposes a set of three phases (or three different types of 'lenses' to view a situation) of inquiry to develop systemic intervention and mixing of methods based on the above concepts. These stages are: 1. A process of *critique* in which different forms of knowledge are identified and their boundaries explored. This involves asking questions on what is to be included as knowledge and who should be included as participants in discussions about what is to be included[66]. 2. A phase of *judgement* in which people judge which forms of knowledge and identity should be promoted (temporarily) and which methods should be used to pursue action. 3. *Action* taken based on the judgements made about methods.

The above phases "constitute a cycle of learning which can be re-entered or operated in reverse order, as and when it is considered appropriate to do so" (Midgley, 1997, p. 284). These phases can be seen in the following diagram:

[64] This may even include the very basic purpose of an intervention as it may be bounded by what certain individuals consider should be tackled (Midgley et al, 1998; Clarke and Lehaney, 2000a).
[65] Midgley (1997a) sees that there is the need to be flexible in the use of methods to tackle different research questions. For him, as well as for Brocklesby (1997), this way of acting obeys a new paradigm management science in which practitioners should learn from different paradigms (and from each other (Gregory, 1992)) in action, without trying to achieve a degree of theoretical commensurability.
[66] Different approaches can be used to explore boundaries, like CSH (Ulrich, 1983) or Midgley and Milne (1995).

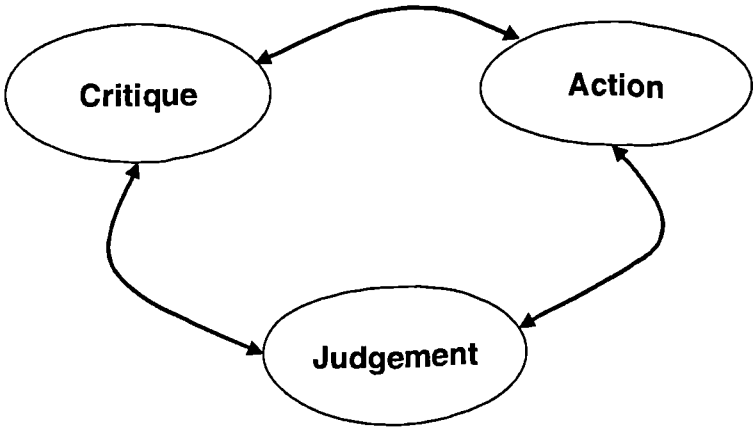

Figure 7.2 Methodology for Mixing Methods in Systemic Intervention (Midgley, 1997a, p. 282).

As seen in the figure, Midgley proposes a continuous process of reflection in which boundary critique is accompanied by judgement on the consequences of adopting certain boundaries, and enriched with action which generates a new possibility of distinguishing new boundaries. The process is continuous and enables those who are taking part in it to learn about the situation, methods and the boundaries that they privilege in action.

As said by Midgley (1997a), boundaries emerge from recognising different issues in action. From there, it follows that the argument developed by Midgley in relation to systemic intervention and the identification of boundaries gives room for tackling *different concerns of people.* In an intervention, the research questions can be enhanced from inquiring about people's concerns about their way of life.

Although boundaries might emerge from different aspects identified in intervention, the above possibility creates a relationship between a context of relations, concerns and values of people, their participation and the need for improvement in society and critique on initiatives. These elements have been described as essential and necessary within a 'strategic' view of the information society. Systemic intervention based on boundary critique gives the possibility in processes like planning of raising different boundaries that people are privileging in relation to issues of concern that they consider relevant in their particular context of relation with others.

These issues could be debated and addressed with different methods in a continuous process of boundary critique in relation to the emergence of primary and secondary boundaries and their stabilisation, either by consensus or by conflict. Among the methods that could be used to address different concerns there could be those which compose Soft Systems Methodology (SSM), Multiview, the TOP approach, the approach of Winograd and Flores (1987), etc.

In ICTP as in boundary critique, practitioners should foster the continuous challenging of accepted boundaries in relation to the concerns raised by people and understand how in a context boundaries are stabilised. This will allow them to assume a more proactive role in the process of planning by fostering (when possible) the inclusion of issues and people in this process and continuous reflection on the consequences of actions for the wider society. It will also commit practitioners to be more proactive individuals in the shaping of their own society.

7.6 Synergising Autopoiesis and Boundary Critique

The above considerations about boundary critique and its potential use in ICTP practice will be used now to provide a critical element to the situation of blindness and questions that have emerged previously in this chapter in order to enrich the ideas derived from autopoiesis. First, a synthesis of the similarities between autopoiesis and boundary critique is presented. Based on that, a distinction is proposed to guide critical awareness. Then some differences between the theories are highlighted that will enrich the use of both in practice.

7.6.1 Similarities between Autopoiesis and boundary critique

In autopoiesis and boundary critique, it seems essential to avoid (in principle) the imposition of a predictable explanation about reality (or a pre-imposed boundary). Such an imposition has consequences that seem to constrain new possibilities of interaction and undermine the human condition of being able to enter into debate and conversation. Either by promoting awareness of autopoiesis or critique on boundaries, both theories foster involvement of people, and do not try to predict the outcomes in interaction but to open planning to different alternatives.

Autopoiesis and boundary critique are both interested in addressing different concerns, which represent concerns of society as a whole, coming from different groups of individuals. By using both theories, it is possible to reflect on how decisions taken (in terms of interactions and boundaries) will affect other groups in society. Wider issues in society are considered either by inviting individuals to engage in a common project or by helping those involved in a situation to see how the boundaries adopted will affect improvement in society. By considering this possibility of using any or both theories, critical thinking could be exerted.

In both theories, it is also clear that stabilisation occurs between people involved in a situation. Midgley (1992) is aware of this situation when he recalls that boundaries are inevitable and that conflict is stabilised by privileging one boundary at the expense of others. The inevitability of boundaries signals the impossibility of being all-inclusive in social design; hence action is necessary. In autopoiesis, although Maturana and Varela (1992) have fostered an invitation to co-existence, they are also aware that in society all realities are equally legitimate, but not all "equally desirable" (Maturana, 1988). The need for co-existence in society needs some laws to regulate interactions in society and guarantee that the physical integrity of human beings is ensured (Maturana, 1998b). Action is also an outcome of reflection.

From the above, it follows that both theories present a view about human interaction. It is a view that fosters inclusion of different people and their concerns. In this view, there is the need to regulate or 'stabilise' affairs in society in a certain way in which different individuals and groups in society can co-exist. The outcome of a new 'stabilisation' is action.

7.6.2 A Distinction of concerns as boundaries

With the above similarities in mind, it is also possible to make a distinction based on the shared concern that both theories have. The distinction sees concerns exhibited by people and lived with others as boundaries. This allows establishing a ground in which concerns may be expressed in language in the form of values, or braidings of emotions and reason. These concerns can also be related to 'others' in the picture as concerns emerge in the history of interactions with others. Concerns also include concerns exhibited by a researcher, or those of people related to the need to free themselves from constraints imposed in their identity.

The distinction may be visualised in the following diagram:

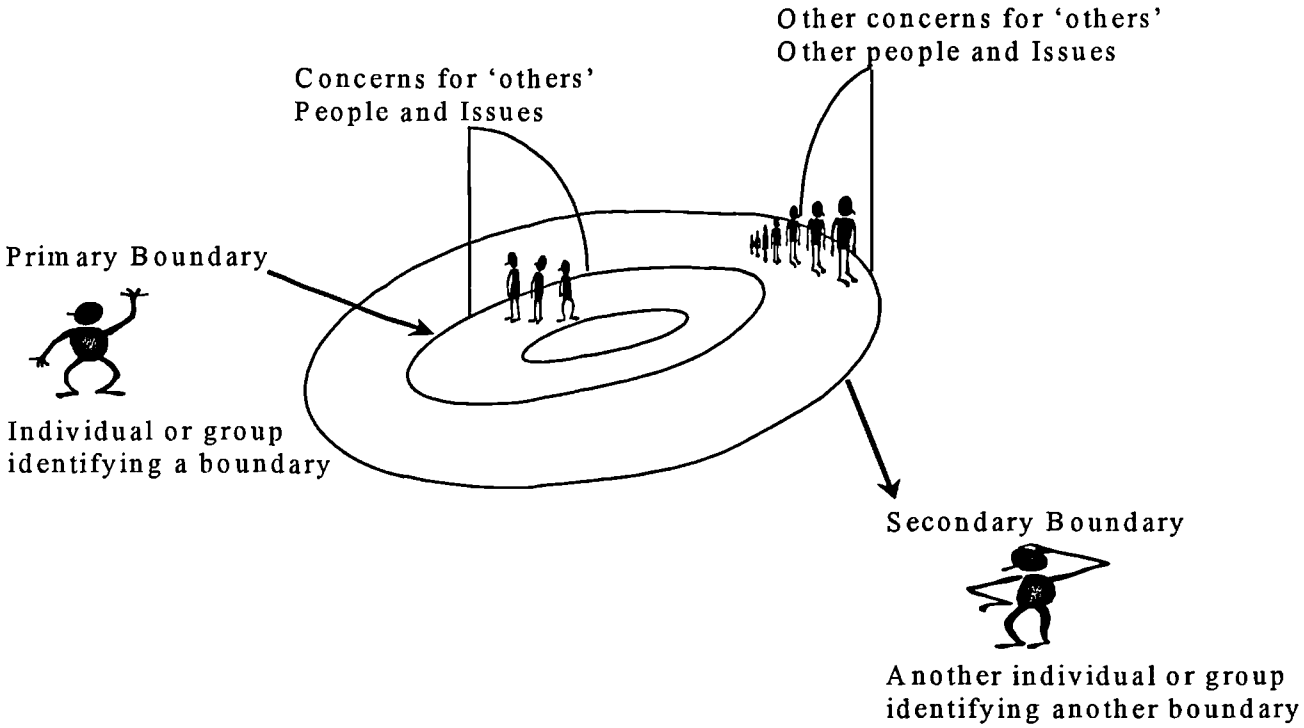

Figure 7.3. Diagram of concerns as boundaries

As seen in the diagram, there is the possibility of distinguishing different concerns and the boundaries that they portray, coming from different individuals or groups. These concerns include also those raised by practitioners. These concerns may be those related to the knowledge identity of subjects as individuals or collectives, or those including wider implications of decisions for other groups in society. Concerns will raise ethical issues, which may be in conflict with another.

In the above situation, *exploration on the consequences of adopting different concerns* (privileging the boundaries associated with them) can be made with people involved in relation to the wider society. Possibilities for action can be derived from this discussion considering conditions of the context in which an intervention takes place. From autopoiesis, one can invite others to create new domains of interaction in which different concerns can be lived. From boundary critique, one can challenge boundaries taken for granted which are related to improvement and see if there are

possibilities of extending the boundary of action to account for marginalised elements (either including or ignoring them) with the corresponding ethical stances.

Taking into consideration the similarities between both theories and the possibilities of critique that both give, what this distinction is reinforcing is the need to be aware of the ethical consequences of decisions taken regarding concerns. However, there are differences that should be considered in intervention, related to the scope of the theories. Some differences will be described in the next section.

7.6.3 Differences between autopoiesis and boundary critique

In autopoiesis there are some assumptions about interaction not present in boundary critique. In autopoiesis, there is strong emphasis on the need to foster co-existence between individuals. This is based on a biological explanation of the origin of a domain of relation in which human interaction takes place. This co-existence presupposes an acceptance of the Autopoietic condition of human beings as living systems. If this condition is accepted, individuals should be aware of how they interact with others, as following either the path of objectivity within parenthesis or objectivity without parenthesis. There does not seem to be any limitation (apart from emotions) to engage in interactions with others once the Autopoietic conditions of individuals is recognised.

For boundary critique instead, the focus of concern is in the existence of boundaries and their inevitability. Boundaries are inevitable and even researchers privilege certain boundaries in practice. Boundaries arise in interaction (even within the individual). In a conflict, there is no unique emotion (like collaboration, mutual respect or existence) to promote among those involved, as in a particular context it is considered that there are already existing ways of perpetuating boundaries; only awareness of the existence of different boundaries should be fostered.

Moreover, in boundary critique any possible action has to consider issues of ritualisation or power-knowledge formations. These should be taken into account when designing any initiative for improvement. Regarding conflict, practitioners should see it as an opportunity to challenge the assumptions of those involved in conflict taken for granted in relation to boundaries. Practitioners should not avoid conflict as the consequence of raising issues about improvement; they should work with the limitations and opportunities that it offers.

It follows from the above that ideas of autopoiesis seem to be more appropriate to be followed in situations in which it is necessary to listen and to respect individuals (including oneself) and their concerns. This entails a self-reflective attitude on the practitioner, an attitude of *openness* regarding his/her own concerns, emotioning and languaging when he/she interacts with others. Openness to listen is gained also by having the possibility of individuals interacting with others in different domains of action.

It also follows from the above that boundary critique is more appropriate when dealing with different views (perhaps conflicting) that emerge from interaction. These views include their own. Practitioners should take part in the phenomena that are generated in interaction by engaging in debate about improvement. Also practitioners are encouraged to take responsibility for raising issues which have wider implications in society and to raise awareness of the consequences in action that privileging certain boundaries at the expense of others has. Boundary critique offers a more critical attitude towards *structuring debate with others* about improvement that should be used in the practice of ICTP.

With the above similarities, distinction and differences, it is possible now to formulate two modes of inquiry to inform the practice of ICTP. They will be presented in the next section.

7.7 Two Modes of Inquiry

This section presents two different modes of inquiry which aim to support a critical way of intervening in a process like ICTP using the distinction made above and the differences between autopoiesis and boundary critique. These modes can be considered as two different 'angles' of an intervention in ICTP. They are related via the possibility given by the distinction of considering concerns that have emerged from the way of life of individuals as boundaries that influence decision-taking processes and actions performed. The modes embrace the possibilities given by autopoiesis (listening and openness) and boundary critique (structuring debate) with a continuous self-awareness of the practitioner's own concerns. The interaction between modes is continuous, as the unfolding of an intervention brings different concerns and boundaries, which can be considered relevant for the process of improvement via planning in ICTP.

One of the modes of inquiry is based on 'concerns', and the other one is based on action for improvement[67] as will now be presented.

7.7.1 Mode one of inquiry: concerns

Within this mode, an individual should be able to portray any preoccupation that has emerged from anybody about the possibility of improving a current situation as a series of concerns towards improvement of the way of life in society. This involves also a researcher as practitioner of an ICTP process with his/her own concerns. This identification of concerns is continuous. Any observer engaged in an ICTP process is involved in the set of conversations that constitute the different domains of interaction through which he/she and others flow. The scope of this process is difficult to define, as in practice there is the idea that in society there could be many emerging concerns. Also, concerns may change as people get engaged in different domains of action and an intervention unfolds.

The process of identification of concerns entails an emotion (at least from an observer) of acceptance of different concerns as legitimate, arising from different domains of action, coming from different ways of living and from the 'flow' individuals through different realities as domains of action. From autopoiesis, one question to embrace a process of interacting with others is borrowed:

- How do we want to co-exist with others?

In this mode of interaction the use of boundary critique can be employed to recognise the boundaries that concerns set in relation to people and issues privileged and marginalised in the identification of concerns. Critique brings the possibility of adopting also a critical mode, including also critique on the identity of those involved in a situation (Midgley, 1997a). It is expected that from identification some research questions arise to be tackled by those who take part in a situation, including the researcher him/herself[68].

[67] The first mode of inquiry can be also considered a mode of action, as Midgley (2000) considers the activity of 'observation' an activity of action. In this mode one is distinguishing concerns with others.

[68] Although I conceived this possibility for researchers as playing the role of experts in providing methods and methodologies to deal with different issues, I have realised that a researcher has also some more personal questions to answer him/herself during an intervention. This will be explored in a later chapter.

From boundary critique a question that can be borrowed to foster reflection on the own concerns (from people and practitioners) is:

- What is included and marginalised in terms of identified concerns?

To take the discussion deeper, questions like those defined by Ulrich (1983) in Critical Systems Heuristics (CSH) and used by Midgley et al (1998) for intervention are considered suitable, as they promote reflection on the possibilities of establishing different domains of interaction with others.

For example, a practitioner might enter into a situation where one individual is concerned about the existing situation; for the latter there is a preoccupation with the absence of values to guide education in a society. This person argues that people are not being educated to be co-operative. Instead, they are educated to be competitive with each other. The concern becomes a plea for making co-existence between individuals co-operative. In terms of boundaries, there is a boundary privileging competition and a marginalised element (co-operation). In this example, it could be the case that a practitioner thinks that what is needed in society is to develop a form of education based on the intensive use of information technology. This raises another concern which could be privileging, among other things, competition and undermining (or including) the need to be more co-operative.

With these concerns, it is possible to inquire about what should be done to improve the existing situation. To address this inquiry, the second mode is presented.

7.7.2 Mode two of inquiry: Engagement with others

This mode arises by the possibility that an individual (including a practitioner) may *engage* him/herself in action with others to address the concerns identified and discuss possibilities of improvement in society as based on these concerns. The nature of this mode as engaging an individual with others considers this action as co-ordinated action resulting from discussion.

From autopoiesis, it is possible for observers to create a new domain of interaction in which they and others co-ordinate their actions to address emerging concerns. Also, by taking part in existing domains of action or creating new ones, an observer may address concerns — in action — which are shared by others. It could be also the

case that as a result of engagement there is a separation of emotions and hence of interactions (Maturana, 1988). In this case, individuals (including these who raise an issue) may decide not to be engaged any more in particular domains of action, 'seduced' by other explanations belonging to other domains as explanations of reality (Maturana, 1988).

Despite the latter situation, it is possible to structure a debate regarding exploration of consequences of addressing or not certain concerns with action. This debate takes place by discussing the implications of adopting certain boundaries. In this situation, boundary critique can be used to foster reflection in relation to the boundaries adopted and the implications that this adoption has for those concerned with action, those affected and those indirectly involved.

Within the co-ordination of action, it may be the case that people recognise the need to address particular concerns agreed *in action*[69]. In this respect, the use of different methods may help to create co-ordinated action. Methods like the ones belonging to approaches reviewed previously may be used on the basis that there is a need to address a particular issue and that this needs emerge from an identification of different domains of action in which methods may help.

In this mode of inquiry, practitioners are also expected to provide their expertise and knowledge in facilitating co-ordinated action, either in the methodological definition of initiatives or by bringing different groups of people to interact based on a common concern, or by providing critique when taking part in any initiative as a domain of co-ordinated action[70]. Whatever the case, an observer may play a critical role either inviting people to distinguish other concerns emerging in interaction (going back to the previous distinctions), taking part in agreed action or developing his/her own actions.

The above two modes are complemented by a continuous boundary critique as will be seen in the next section.

[69] This could include as Maturana says, the agreement of conducting separate actions (Maturana, 1998b).

7.7.3 Continuous boundary critique

From the example above, it is noticed that any identification of concerns brings the possibility of identifying boundaries associated with them. A practitioner who can raise issues regarding marginalised elements can also challenge these boundaries in relation to others. In this case a practitioner would be making a critique of boundaries. Regarding situations of distinguished existence of different concerns which may lead to enter into conflict in interaction[71], the use of boundary critique should help to highlight issues and people that are excluded in addressing particular concerns via design plans, methods of intervention or actions. It may also help in distinguishing those concerns that surround a particular situation like a situation of ICTP in organisations or society, and people that should be included in this process.

As interaction is continuous, new boundaries may emerge during discussion. In this respect, in the work of Midgley and Milne (1995), Midgley (1997), Midgley et al (1998) and Clarke and Lehaney (2000a) the need to gain a better understanding of boundaries as intervention unfolds it has been mentioned, and its purposes are discussed[72]. The boundaries identified can be also challenged in relation to the marginalisation of certain elements that they will generate. To this possibility and following the process of pushing out the boundaries, practitioners may reflect on the continuous questioning of:

- What notion of others does this boundary bring?
- Who are not 'seen'?
- What is not seen as relevant?

This questioning can help foster discussion.

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[70] I am including here experience that practitioners like myself have in the area of ICTP regarding the use of methodologies for information systems planning.

[71] This consideration entails also the awareness of the existence of different explanatory paths brought forth by people involved in interaction, e.g. those following objectivity without parenthesis.

[72] This also presents a similarity to the use of systems methods to address the problem of defining information technology tools to support organisations presented by Clarke and Lehaney (2000a). They see that the use of boundary critique to define the scope of the project (what should be done, who

For the mode of inquiry about improvement, boundaries can emerge about the 'ought to be' of a situation as described by different individuals. The use of different methods to address concerns identified brings also boundaries that privilege certain elements taken into account for the definition of any initiative. As the process of identifying concerns is continuous, boundaries might get pushed out as new understandings of improving the current situation are defined and new possibilities of action emerge.

In short, the process of boundary critique is made continuous through both modes of inquiry as new concerns emerge; possibilities for action to address them are identified and debated, and the results of action give birth to new concerns about the way of life of individuals.

To finish with the definition of a methodological framework, some guidelines for activity in each of the above modes of inquiry are given. These are intended to give critical orientation to the activity of practitioners engaged in ICTP.

7.8 Methodological Guidelines for Modes of Inquiry in ICTP

With the above modes of intervention, it is proposed now to use the following guidelines for activity. They are focused on two activities that have constituted the core concern of the systems theories presented and of the need to have a more inclusive, participative and critical approach for ICTP. These modes of inquiry can be seen as different 'lenses' about ICTP, with emphasis on certain activities.

For the mode of inquiry of concerns, the main activity proposed is *distinction (of concerns)*. In this activity, an observer regarding a particular situation (like ICTP) should focus on distinguishing different concerns from his/her way of life in society. These concerns can also be related to wider concerns in society. An observer may invite other concerns and people to take part in an inquiry towards improvement of the situation. As a result, different concerns in the form of issues and people that need to be included emerge. Different questions that people consider important to tackle may emerge during the process. The activity of distinction also derives in boundaries that concerns identified bring forth to debate. These boundaries are

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should be involved) helped to clarify particular issues that needed further discussion and to leave some issues open to participation and immediate design of action plans.

challenged through boundary critique by contrasting and discussing the implications of adopting some of them.

For the mode of inquiry based on engagement with others, the activity proposed is *(developing) improvement.* This activity consists mainly of actions in which an observer is engaged with others, entailing co-ordinated action with others towards improving current situations by addressing concerns identified via definition of plans or initiatives. An activity of improvement also presupposes designing appropriate spaces for interaction in debate in which reflection could be fostered, bearing in mind the possibilities given by a specific context of relations[73].

The development of this stage depends on the existence of an emotioning distinguished in willingness to improve current situations. Different methods may be used to address particular issues related to what needs to be done. Practitioners should also develop and promote action at different levels if they consider that this is necessary, in such a way that they could enrich discussion on boundaries identified (Midgley, 1997b).

When discussing different boundaries regarding design of initiatives for improvement, ethical issues can be discussed regarding inclusion, exclusion and marginalisations of people and other matters. Also the values that drive a process may be distinguished as those which privilege certain elements.

In both activities of distinguishing concerns and developing improvement, it might happen that as a result of interaction, a single boundary is privileged at some points of intervention. This includes for example, the choice of methods (for inquiry into distinction or implementation of actions), scope of intervention, the concerns addressed, and actions to be developed. This stabilisation of one type of boundary at any time in intervention should not be the main focus of the modes of inquiry, as the existence of different concerns, ways of reasoning about improvement and definition of initiatives and plans should be respected, valued and developed.

The interaction between these activities corresponding to the modes of inquiry proposed is explained graphically in the following figure:

[73] Like those actions mentioned by Midgley (1997a) in which practitioners design adequate instances of interaction with people, bearing in mind the limitations of having more open discussions. I also include

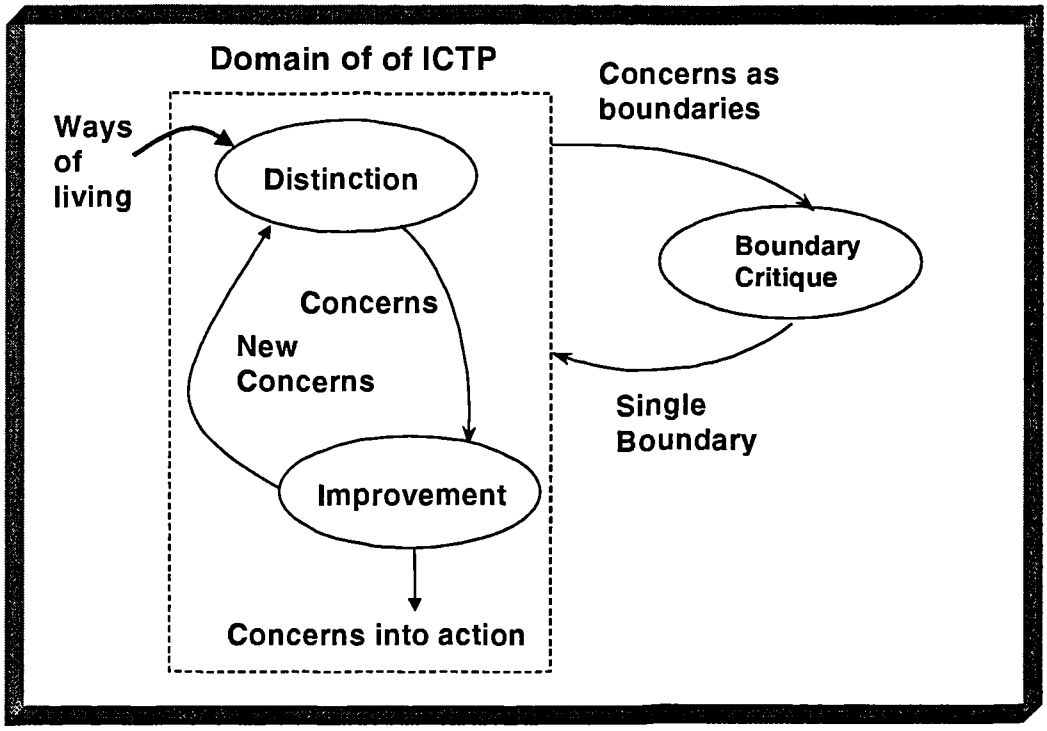

Figure 7.4. Interaction between modes of inquiry to support ICTP

As seen in the figure, the process of inquiry is iterative between different modes. As new concerns arise they can be distinguished as boundaries bringing values, assumptions and privileges on inclusion of issues and people. An observer (practitioner) may also challenge a boundary that has been agreed previously by including other people and issues that he/she considers will push out this boundary (Midgley et al, 1998). This as well as the use of different boundaries, will have ethical implications for the outcomes of the process of inquiry. Definition of actions to bring improvement also brings identification of new concerns and/or boundaries that influence decisions taken and actions defined.

In the inquiry, action is a necessary element that accompanies boundary critique and judgement about what to do or privilege (Midgley, 1997a). Actions like choice of methods, definition of concerns to address in planning, design of alternatives of action and debate enable continuous inclusiveness, involvement of individuals, reflection and critique towards improving the way of life of individuals.

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here those actions which result from the engagement of practitioners in domains of action motivated by their own concerns.

The above concludes a methodological framework that addresses the issues identified as relevant for a critical and systemic practice of ICTP within the information society. Some conclusions are drawn for this chapter as follows.

7.9 Conclusions

In this chapter, a critical systems thinking framework to address the existence of different concerns in society that may emerge in a process of ICTP has been presented. This framework aims to provide more inclusiveness, involvement, ethical reflection and critique to the process of planning. It is based on two modes of inquiry that consider the similarities and differences between autopoiesis and boundary critique.

Bearing in mind the ideas of autopoiesis and some of its applications, this framework is descriptive in a way that shows reality to an observer as composed by different concerns and domains of action that are lived with others. It invites him/her to be part of this by getting engaged with others and fostering a co-existence of different domains of actions, guaranteeing the living of individuals as human beings. The character of coexistence means at least the possibility of distinguishing others before taking any action.

This framework also includes the use of Critical Systems Thinking in relation to boundary critique. Through critique on boundaries, it fosters a form of critique that makes visible issues and people that could be included in processes of social design like ICTP. The use of boundaries brings wider concerns in society to debate on improvement with (or without) technology. Moreover, it directs debate towards discussion on ethical implications of ICTP.

From the discussion on autopoiesis and boundary critique, a distinction has emerged. It is the distinctions of concerns as boundaries. In this distinction, there are concerns from people in a situation, which can be considered as systems boundaries. These concerns bring important consequences for the inclusion and marginalisation of people in social design, consequences that can have ethical impact in society as a whole.

For practitioners and people involved directly or indirectly in the planning of information technology for the information society, this framework also challenges their own views and relates them to ethical boundaries. The distinction helps to address elements identified as essential for improving an ICTP process: a practitioner (analyst[74]), a context of intervention, methodological approaches for ICTP (in the form of methodologies as sets of principles or methods as parts of methodologies) and participation. About these, the distinction describes a way of reflecting critically on these elements by using concerns of people taking part in a situation (including a practitioner or researcher). Practitioners are encouraged to invite people to address particular concerns in a context, and assume a role of challenging assumptions if they consider it necessary. They are also encouraged to use different methods to address concerns identified.

The next chapter will describe the use of the above framework in practice for the phase of distinguishing concerns. This presents a reflection that informs the role of practitioners as observers in relation to ethical issues and the role of practitioners raising different issues in a process of ICTP.

[74] Given this name previously in the review of ICTP approaches (chapters three and four of this thesis).

Chapter 8: Ideas in practice: Exploring Possible Roles of Information and Communication Technologies (ICT) at Javeriana University in Bogotá, Colombia.

8.1 Introduction

Having exposed the theoretical background and methodological framework that supports a strategic view of information and communications technologies planning (ICTP) in the information society, the purpose of this chapter is to present a reflection on the application of these elements in practice.

These ideas have been used in a research project called "Exploring possible roles of information and communication technologies at Javeriana University". This took place at Javeriana University in Bogotá, Colombia, during the period between March 1999 and August 1999. This project allowed me as a researcher to reflect on the adequacy of the theory and methodology used to guide a process like ICTP.

During the project I gathered all the information in a personal diary (Diario, 1999). This diary contains my own thoughts, ideas and impressions and documents about the project as well as the information I gathered from other people in the form of interviews, documents and personal opinions. Most of the reflections on this chapter stem from the information contained in that personal diary.

The style of narrative I am using for this chapter is personal and refers to 'we' when I describe a common concern or idea shared by Mr Diego Torres and me. Mr Diego Torres (Diego in the narrative) was the representative of Javeriana University involved in this project as a co-researcher[75]. We set up a work group and developed most of the activities together. We had common concerns, as well as different concerns. As will be seen in this chapter, the singular 'I' is used to express views which are not shared by Mr Torres. These views also account for different ethical concerns and the finding of 'I' as an ethical subject.

[75] Dr Gerald Midgley from the Centre supervised this research group for Systems Studies at Hull University (UK).

The narrative of this chapter will describe in a chronological order the development of this project. It will start by describing the proposal that I made to the people at Javeriana and my initial concerns at that time (November 1998 to February 1999). Then I move on to describing the setting up of the inquiry process and its development in two phases: distinction (March 1999 to May 1999) and design (improvement) (June to July 1999). In this chapter I address the phase of distinction. The findings that I present are related to Javeriana University and its context. They also have to do with myself and what I call the discovery of myself as an ethical self, a subject concerned with ethical issues.

8.2 Proposal for the Project in 1999

Having explored different alternatives on how to conduct a practical effort in ICTP using the framework previously defined[76], I wrote a proposal for Javeriana University (Córdoba, 1999). This proposal was intended to develop a process of inquiry into the plans of Javeriana University regarding the use of technology. In the proposal, the inquiry was declared as critical; it had taken a critical approach to the current understanding of education in society and the need to foster reflection before action. To do that, it was considered important to establish a connection between critique and different realities lived by people as being immersed in different domains of action. Educational processes could provide space for this reflection. I argued for a concern-based view of education, which could be connected to addressing emerging concerns of students and teachers in society. Information technology could then support the addressing of concerns identified in action.

The above stance can be summarised in the following paragraph contained in my proposal:

> education could be conceived as an inquiry process *with others*, an experience of *life*, not constrained by the standardisation, narrative or certification (processes). It is a part of life...a process of collaboration between different people in which individuals share a common concern (emotion) for learning that comes from their own experience...A new education process could be a dynamic practice of reflection and action on people's own ways of living (Córdoba, 1999, p. 26).

From this view of education, it was said that an exercise such as information and communications technologies planning (ICTP) should consider multiple possible understandings of education existing in society. This consideration embraced a critical reflection on the boundaries used to define education in society from different perspectives. The boundaries included the groups benefited, the values to be promoted and the desired impact in society (Córdoba, 1999).

From my communication with Diego at that time, I knew that one of the processes that was going to be developed by Javeriana University in the year of 1999 was to review the institutional technology strategy. Bearing this in mind, my proposal for a project suggested developing an alternative view of what should be done with this strategy. I suggested that it would be interesting to develop a *system* for Javeriana in which different concerns could be lived in interaction by people (Córdoba, 1999). The notion of system was that of a social construction and it implied that people at Javeriana should define this system to guide strategies and actions oriented to allow the coexistence of different concerns coming from the people taking part in and being affected by the actions of Javeriana.

Diego presented the proposal (on behalf of both Hull and Javeriana researchers); Javeriana's research committee approved it in December 1998. The nature of the project helped. It was considered as a 'good' academic exercise. Also, in the words of Javeriana University Academic Pro-Vice-Chancellor Father Jorge Pelaez S.J (and the person in charge of research matters at Javeriana), it was an interesting and 'inexpensive' project[77].

Later in conversation with Father Pelaez, I could see that the project had been accepted as an opportunity to help to support current initiatives at Javeriana and generate knowledge which could be used by staff and students to improve various activities. To this approval it also helped that it was going to be conducted as part of collaboration activities between Hull and Javeriana universities. This fitted well within

[76] Other attempts that I made to get a practical project in ICTP can be found in the Appendix 1, section A1.1 of this thesis.

[77] The expenses of the project were almost covered from different sources; the project was not expensive for any of the parties involved. Javeriana provided me with a physical space for working and the facilities of the Computer Systems Engineering Department (fax, phone, secretarial assistance, etc.). My living expenses were covered by the scholarship I was awarded by Hull University to do my PhD; my family provided me with accommodation and food. Hull University Business School funded the air ticket for me. We took advantage also of Dr Gerald Midgley's visit to Javeriana University in April 1999 to conduct another project. At this time we followed up of this project and I received important feedback from him.

the strategy of Javeriana of maintaining academic-relations abroad with educational institutions as will be described later.

The project was also approved at Hull University in my confirmation seminar[78] at the business school (HUBS) on the 22nd of February 2000. The suggestions made by Dr Paul Keys and Dr Wendy Gregory from HUBS, my examiners, were related to what I could learn from the project. For Dr Paul Keys, it was important to keep in mind the insights gained from using the ideas of the framework on autopoiesis, critical education and boundary critique in practice as one of the main focuses of the research. For Dr Gregory, the main concern was related to my own expectations of involving different groups of people. She found my assumptions on the willingness of people to participate and to raise different concerns interesting. She suggested me to be aware of the possibility of finding other means to solve particular questions. She also suggested me not to be extremely concerned if I did not fulfil my concerns. Which were those?

8.3 Concerns Before Starting

The project had been motivated by a common interest that Mr Diego Torres and I had about the use of Critical Systems Thinking ideas in our field of work of information technology. This interest developed during our Masters degree at Hull University (1997-1998). As information technology practitioners, we had discussed the possibility of broadening the scope of some of the activities in information technology planning, design and implementation. In our minds there was an implicit privileging of the use of systems thinking to deal with the practice of management of information technology.

During our masters degree at Hull in 1997, Diego and I had also learned the language of Critical Systems Thinking and saw the need to reflect on the boundaries adopted in the definition and use of technology in society. For us the sound of a critical systems view of information technology sounded attractive. More over, in our native country this view could help us to enrich our understanding of some cultural

[78] A confirmation seminar at Hull University Business School (HUBS) is a stage in which doctoral (PhD) students present a proposal for their research after being registered as Master-of-Philosophy as students for a period up to 18 months. Students write a proposal (similar to the one I wrote for Javeriana) and it is reviewed and discussed in the confirmation seminar by a couple of examiners appointed in advance; also the attendants may ask questions to students who are presenting their

issues that needed to be taken into account in the use and implementation of technology.

We had a common view about technology: it should be considered as a *social artefact*. By this we meant that technology *was technology shaped by the social context where it was designed and used* (Hirschheim et al, 1991; Orlikowski, 1991; Walsham and Han, 1991; Walsham, 1993, 1996; Webster, 1995; Brown and Duguid, 1999). We believed that it was people, their concerns and values, which shaped technology. It is people who construct, implement and use technology. This position emphasises the role of individuals[79] and groups in defining the scope and actions supported by the use of technology. Human values provide an imprint for technology (Pacey, 1974, Goulet, 1977, Borgmann, 1992; Beeson, 1999). This also fitted well within the spirit of the methodological framework defined for the practice of ICTP, which aimed to recognise different concerns from the way of living of people.

My own concerns and expectations were about taking part in a practical project. I considered it important to challenge discussion about issues which it seemed that not many people wanted to talk about. As an ICTP practitioner before starting my PhD, I had noticed the lack of discussion in these processes. People were invited to take part in activities of information-requirements definition. This seemed to be the main concern of ICTP. When other concerns emerged, they were dismissed (Córdoba, 1998). The argument used was to invite people to focus on the core concern of the exercise. It was argued that other people would take care of surrounding issues about use or implementation of information and communications technologies (ICT). It seemed that people's lives and concerns were not part of the discussion, nor were other business-related concerns.

Following on the above, in a practical project in ICTP I expected to overcome the problem of involvement of people and to be able to address different issues. I considered that the use of systems thinking methodologies should help raise awareness of people on the constraints imposed in participation by the use of traditional approaches of strategic planning and ICTP[80]. The ideas on Critical

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proposals. If the students are approved, they are transferred to the PhD course and they are allowed to continue pursuing this latter degree.

[79] In our view, also, we saw feasible for individuals to exert a degree of agency and define the scope of actions related to technology (Pacey, 1974, Goulet, 1977; Giddens, 1979 and 1984; Orlikowski, 1991; Walsham and Han, 1991, Webster, 1995).

[80] Some other of my own concerns before starting the project can be found in the Appendix 1, section A1.2 of this thesis.

Systems Thinking (CST) appeared to offer methodological, ethical and conceptual grounds on which people could be more involved in planning, and their values and concerns taken into consideration in any design.

Hence, I was expecting that the use of the methodological framework (chapter seven of this thesis) could enhance discussion in practice and contribute to the co-ordination of different initiatives as addressing different concerns at different levels in society regarding improvement (with or without information technology). I considered that as ICTP practitioners we could contribute to the improvement of the way of life of Colombian society if we were more aware of the existence of different concerns, and of the possibility of addressing them, at least in discussion.

With the above thoughts and expectations, we (Diego and I) were to intervene in the project at Javeriana.

8.4 Javeriana University

Javeriana University was founded in 1622 during colonial times in the region now called Colombia[81]. It is a Jesuit value inspired institution that first focused on teaching law and theology. In the beginning it applied rules of racial discrimination in the recruitment of students: no black students were admitted, which was the norm at that time in history (Jaramillo, 1982a).

Jaramillo (1982a and 1982b) provides a historical view of the process of education in Colombia in which Javeriana University has taken part. It seems that educational styles adopted through history have been strongly influenced by the ideology of the ruling political party or group. In colonial times, when Javeriana was set up, education was confined to the ruling class. It was considered that the only valuable careers universities should offer were philosophy and theology. At a different level education was seen more as an act of charity, based on a reward and punishment style of teaching. Money to fund basic education was not available.

With the independence of Colombia from Spain in 1810, new intentions of making education a formal and more open institution in society were expressed. This

[81] In the 17th Century, this region was called Nueva Granada and included the territories of Colombia, Venezuela, Ecuador, Peru and Bolivia (Jaramillo, 1982)

opened the way for the appearance of a more liberal style of education, centred in the freedom of thought and religious choice. One of the examples that can be seen in Colombia in the 19th Century was the use of ideas being 'imported' from Schools like Lancaster (England) or German schools to develop educational practices in primary and secondary schools as well as universities. During the 20th Century, education widened its scope and participation; different groups of people have been benefited at different levels. Public schools and universities[82] were created around the country.

The above can be considered an achievement from the 19th century in which continuous civil wars did not allow the establishment of a national education system; nor could the possibility of having different value-centred styles of education be developed fully throughout the country. Also through time, this adoption of foreign practices has been maintained. At different levels (but not on a national basis), these practices have complemented the traditional style of education centred more in Catholic values and careers that have traditionally been considered more valuable like medicine, theology and law (Plan-Educacion, 1999). Still today, however, education as a system is affected by the tensions between central and local governments for the allocation of resources; also it is influenced by the tension between religious centred establishments and others (Plan-Educacion, 1999; El-Tiempo, 1999).

Nowadays, and since being re-established as a University in 1930 (the University had not been functioning during the period between 1767 and 1930[83]), Javeriana University's conception of education has changed to embrace a wide variety of subjects, and it admits students from all racial backgrounds. In 1999 there were 3,244 lecturers (out of which 1,435 were full-time) and 28,250 students. Javeriana had at that time 18 Faculties offering 50 undergraduate programs; 127 taught post-graduate programs; and 4 doctoral programs[84].

In comparison with some universities in other countries, and even within Colombia, Javeriana has a strongly hierarchical management culture: this seems to be a reflection of its Jesuit heritage, with priests occupying the key positions of authority.

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[82] The best example is the National University (Universidad Nacional)

[83] Jesuits were expelled in 1767 from Colombia and Javeriana University was closed. It was re-instated in 1930 (Javeriana-Reseña, 2001).

[84] Numbers for 2001 have not been made public through the Internet at the time of writing this chapter (May-June 2001).

Any large-scale project seeking the involvement of a wide range of stakeholders needs the support of the priesthood if it is to be successful.

A desire to influence society as a whole has been noted in the University's most recent strategic plan. Based on the values of the Catholic faith, in the last decade there has been a continuous project of promoting a form of more 'inclusive' education that it is hoped will address some of the problems of Colombian society. Among the problems cited in Javeriana's plans (Proyecto, 1992) there are: inequalities in the distribution of wealth; the instrumental treatment of human beings; a lack of appreciation of national culture; environmental damage; intolerance; and a lack of access of some sectors to educational opportunities. Javeriana is striving to be an educational community with stable links inside and outside the institution to promote change toward a more egalitarian society (Proyecto, 1992; Orientaciones, 1998).

Institutionally Javeriana has defined a set of goals. The way of doing this is also defined as being based on the values of Christianity. It is expected that each member of the institution will follow the set of goals, rules and values that have been stated as essential elements within institutional action[85]. In short, the set of goals, rules and values 'frame' any action according to what Javeriana expects to achieve as a whole. The institutional goals state that Javeriana should promote (Javeriana-Estatutos, 2001): 1. serving Colombian society by promoting a more civilised society, whose actions should be based on Christian values. 2. Aiming to achieve integral human education, by maintaining and developing science and culture. The above should be done by transcending the technical and informational limits of education. 3. Disseminating a culture in which the methodical knowledge is integrated with the highest spiritual values. 4. Becoming an element of development, critique and transformation of the society where Javeriana as a University is acting.

As said above, the style of education at Javeriana is said to promote an *integral* process of education. This means that it is aimed to achieve a harmonic development of all the dimensions in an individual (Javeriana-Proyecto, 2001). In integral education, each person (agent) involved is responsible for his/her own educational development. Integral education fosters autonomy of individuals and their adequate integration into society. Integral education embraces also different

[85] There are different sets of rules at Javeriana. There is a general set of rules, describing the nature and main goals of the institution. Another set defines specific rules for the academic area. There is also a code of rules for teachers (Javeriana-Estatutos, 2001).

areas of knowledge to which those involved can gain access, competence, critical reflection and creativity. It also fosters education as a process of personal development of physical and mental qualities (Proyecto, 1992). To achieve integral education, Javeriana considers it necessary to base education in Christian values; their influence on students will motivate them and encourage them to promote social justice and cater for the needs of the 'weakest' in society (Javeriana-Proyecto, 2001).

Javeriana's main strategy continues to be the promotion of a new educational project in Colombian society (Javeriana-Proyecto, 2001). This requires commitment of members of the institution to live the values that constitute the core of the action plans in different spheres of life (family, work, business, etc). Staff members and students are continuously encouraged to know more about Catholic doctrine and the spirit of education inspired in the Jesuit doctrine based on dedication and a good balance between theoretical and practical learning. Activities are organised to enable people to understand and incorporate these principles in their daily lives. For example, for members of the computer systems department a session of one hour a week was set up in which they could reflect on different issues accompanied by a Catholic priest. Although it was not compulsory to attend, it was an open space to share beliefs and principles with others, and examine situations of interest for members.

Striving for competitiveness in the Colombian educational sector and the desire to maintain the spirit mentioned has created a mixing of sets of values within Javeriana's staff and members. People are brought from other institutions to reinforce the quality of teaching and research, and at the same time they are encouraged to acquire and live the existing culture of education based on Catholic values. Students from other religions are also allowed, although part of the first modules that they have to take has to do with Catholic doctrine.

Currently, the efforts developed by Javeriana have been also directed to face economic recession in the country. The Colombian economic crisis has generated a number of problems for the University. Staff numbers have been reduced and research professionals are being assigned more teaching hours. Students have had to be helped financially by Javeriana in order to be able to pay their tuition fees. Information technology has been seen as a resource which could generate cost reductions for the University, particularly in the case of remote-learning technology, which could help to deliver educational programs through the Internet and help

Javeriana and students to save money on transport and accommodation around the main campuses in Bogotá and Cali (Colombia) (Video-Conferencia, 1999).

Particularly in the Engineering Faculty, there is a perceived desire to improve the way in which existing relationships between different groups take place, with the aim of contributing to achieving institutional goals. Some procedures have been put in place. Two of them will be mentioned here (Consejeria, 1991; Direccion, 1991). One is the *personal counselling*[86] process between teachers and students. In it, teachers are required to provide counselling and assistance to students in order to help them achieve a successful performance through their academic life. This should contribute to the integral education of students. Teachers should give advice to students within what is allowed according to the institutional culture and plans. They are also encouraged to perform their job according to the standards set in their own particular professions. The development of counselling practices seems to fit well with the institutional value of promoting dialogue as an element of integration between people and also between different disciplines.

The aim of personal supervision for students is to make them aware of the degree of freedom they have within the institutional culture and plans established to regulate academic life within the University. Both students and teachers are encouraged to use the facilities provided by Javeriana to achieve their own development. Under a common goal, the interaction between teachers and students is specified and directed. Also the information that could help both parties to achieve their own goals is considered essential for a good performance by teachers and students. Information can foster collaboration among faculties, counsellors and students (Consejeria, 1991).

The other procedure established is decision taking. There are some guides that help senior management of the University to achieve a good climate for decision taking. Again, this process is framed within institutional norms and goals. Non-productive discussions (those which do not contribute to the solution of problems) should be avoided as they may go against what has been already established at higher levels of the hierarchy. To emerging conflicts, a particular form of consensus should be achieved, one in which "the general good should prevail to the particular interest, which in any case should be also recognised" (Direccion, 1991, p. 3, my translation).

[86] The name in Spanish language of this counselling is 'consejeria'.

The decision taking process should also consider the need to plan and review carefully actions to be developed by a group. Individually, it invites participants to be prudent, in order to be able to maintain silence when needed, or to raise issues when considered appropriate.

Decision taking is considered also as having a political cost of unpopularity among certain groups not favoured by decisions. Decision taking should be assumed "with clarity and without any fear...there are criteria — specially for *young* students —, that are not *easily* understood" (Direccion, 1991, p. 4, my translation, my emphasis). Also during Javeriana's development it seems that representation of academics and students has achieved a degree of 'stability' as it is stated in a further note in relation to the updating of institutional rules (Javeriana-SantaSede, 2001) that describe relations between Javeriana and the Vatican State:

> the scarce representation of normal lecturers and students in the government instances of the University might cause attention. The broad and positive experience of several years as well as the absence of issues of concern in this area seem to demonstrate that representation has been situated at an adequate level considering what is required and needed within a decision-taking system that operates by consensus...This is different from having a system influenced by politics, in which numbers (majorities, minorities) influence equilibrium (or stability) (Javeriana-SantaSede, 2001, my translation, my parenthesis).

As seen, both the procedures of dialogue and the understanding of representation reveal the role conceded to dialogue and participation as the means of promoting understanding and a degree of stability to contribute to the development of the institution. Dialogue should be fostered about potential conflicts, in order to overcome potential problems of lack of understanding of institutional goals or values, lack of information about the situation in conflict, lack of commitment to institutional plans. Among some other issues that should be considered in dialogue there are: Wrong or unfounded interpretation of what produces discontent; inadequate use of communication channels; potential excessive aggressiveness; one's own view of discontent in relation to situations of group discontent (Javeriana-Inconformidad, 2001).

A situation arises here in relation to the above considerations. It seems that the instances for participation and dialogue are predefined. They aim to ensure institutional plans and goals are achieved by people at Javeriana. Participation is directed to solving problems under a relationship depending from hierarchical authority. This could constrain possibilities for a more open dialogue. To this situation, some questions arise:

- What if people have other goals or concerns in mind apart from those established in the institutional plans?
- How to consider conflicts emerging from discontent that cannot be dealt with using the existing notion of dialogue at Javeriana?
- How to be flexible enough to respond to demands from the context of Javeriana?

The above situation and questions point to the need of considering how institutional plans and goals influence and are influenced by the interactions between individuals and groups at Javeriana. A more detailed account of how we interacted in this context will be developed from the next section of this chapter onwards and also in the next chapter of this thesis.

8.5 Setting up the Project at Javeriana

After being accepted to work at Javeriana, I set up a schedule of five months to work in Colombia using the systems-thinking based framework explained in the previous chapter. In the schedule I proposed to develop two main phases: one of 'distinction' and another of 'design' (improvement). Although in the framework already defined the modes of inquiry were to be used in an iterative and cyclic way, I decided to emphasise that at the beginning of the project we were going to be concerned with understanding the situation at Javeriana. To do that we needed eight weeks for what we called the phase of distinction. Then we would be more concerned with defining and supporting initiatives of action[87] through a design of the system to allow coexistence of concerns about the way of living of people (Córdoba, 1999).

The phase of design (improvement) was going to take another eight weeks and it could start in parallel with the end of the phase of distinction. The term 'design'

appealed more to the traditional approaches of ICTP in which the process concludes with an ICT-based project portfolio (García, 1993; Galvis, 1995). The name of 'design' also seemed to me more adequate to respond to potential concerns of people in relation to the results of the project. If they asked about 'tangible' results, I could argue that there was a whole stage dedicated to design 'tangible' actions. I was taking into consideration that the form of inquiry that we (Diego and I) were going to adopt could cause the impression in people of being 'too abstract'.

In the schedule, the last month was going to be spent in setting up the project at Javeriana and elaborating the final report. This month was also going to be used to finish some activities that could emerge from interacting with people (for example, unplanned meetings or additional interviews). The schedule for the project and the various activities proposed are contained in the following diagram:

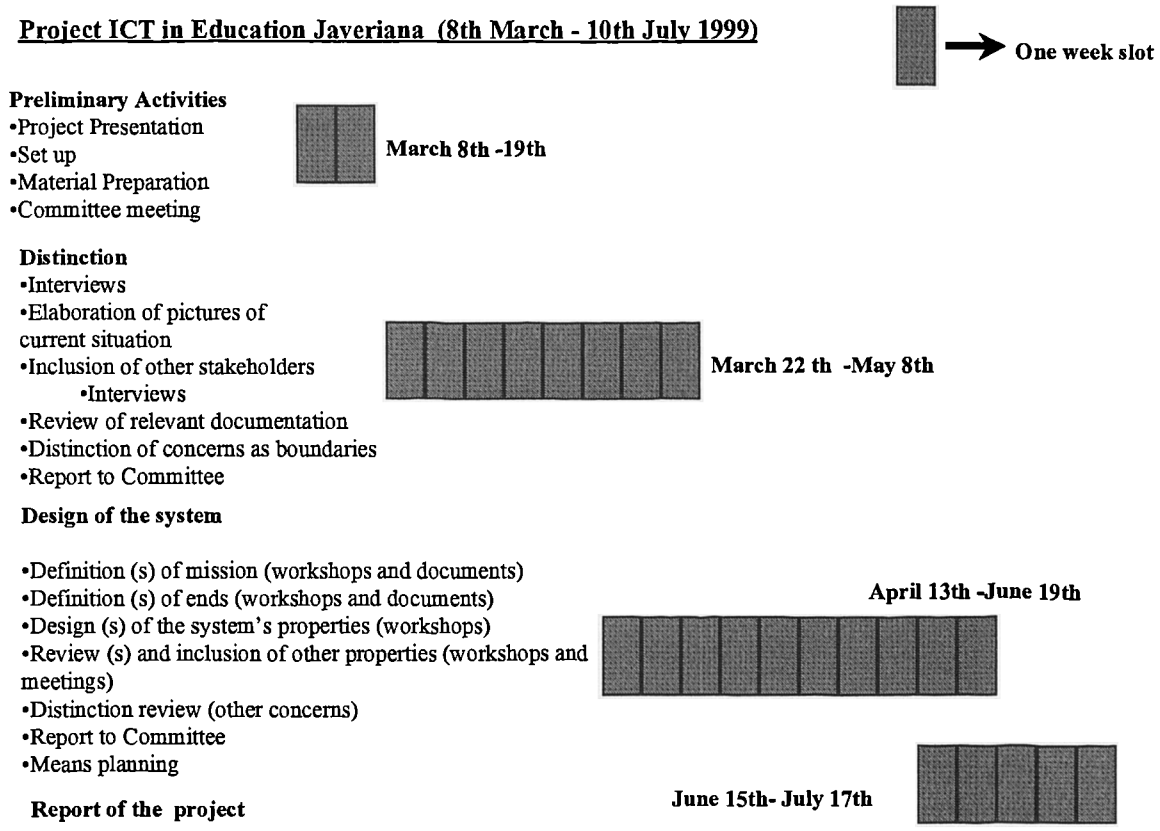

Figure 8.1. Schedule of the project presented to Javeriana University (Córdoba, 1999).

[87] This also was made to make the project look like a traditional ICTP project. Traditionally in ICTP, an understanding of organisations is made first in order to formulate projects more comprehensively and to define action plans later on (García, 1993; Galvis, 1995; Fundacion-Social, 1996).

8.5.1 First impressions

I arrived in Colombia in March 1st 1999 and settled down at my parents' house, which was conveniently located for Javeriana campus. In our first meeting at Javeriana, Diego and I discussed what needed to be done to give an official opening of the project and how I was going to be provided access to facilities like computer, internet access, library services, etc.

Also in that first meeting mentioned above, Diego talked to me briefly about the state of the art of information technology at Javeriana. According to his view, there were different efforts and projects developed by departments and units, which were related to the use of technology. Javeriana had set up a Technology Services Unit, in charge of the maintenance of the core information systems for the institution. These systems included financial systems (accounting, treasury and internal purchases) and student registration, as well as administration of timetables and teaching rooms for students and teachers. The latter system was, in the mind of the unit director, in need of replacement.

At Javeriana, students had Internet access facilities and also were supported by software packages available through the internal network of the University. The library had a catalogue system, which could also allow students to consult other libraries' catalogues. Information retrieval from newspapers and abstracts was also available in CD-ROMs in the library.

Also at Javeriana at that time there were a number of projects, which were intended to develop more technology specific services for faculties. These projects included developing educational software, implementing a digital library system and new Internet-based services for the existing library. Also, a new initiative to provide Tele-conferencing services had been discussed by some members of the communication faculty (Video-Conferencia, 1999).

Diego expressed his concern about the lack of proper co-ordination of these different efforts, as well as the lack of a coherent strategy which could guide actual and new initiatives. The lack of co-ordination was also manifested in the existence of different committees to discuss projects. He had been doing a diagnosis of the technology services unit, and found the above problems there also. It seemed that this concern

fitted well with the claim made by Maturana and Varela (1987) of promoting co-existence between individuals and the domains of action in which they take part. In the methodological framework this concern could be addressed in practice by inviting individuals living in different domains of action to reflect on this need.

We agreed that the first thing to do about the project to do was to let other people know about it. We thought that this was an appropriate way to gain their acceptance and their participation in it.

8.5.1.1 First meetings

After this meeting we went to see the public relations pro-vice-chancellor of Javeriana (my translation) who first organised the setting up of an office for me at the computer science department. He also organised my access to the library and its services.

During the first week we also met the director of the computer science department, Maria Teresa Amorocho. She was very kind and she agreed on some of the conditions that we discussed, the most important for me at that time being the need to have flexibility in my own time table, and also having my own computer with Internet access. By setting my working space there at the department, I had the chance to enter relations with the rest of the group of lecturers and the secretary.

We decided to appoint a student (Adriana) to help us with the logistics of the project. This included setting up appointments, booking places for the activities, keeping track of people invited to take part, and collaborating in the preparation of materials or documents to present to others.

With the above issues sorted out, we started the phase of distinction.

8.6 Phase with Emphasis on Distinction

In this section I describe the main activities of the phase of distinction. This includes preparation of documents, description of the format of activities (interviews, workshops), the rolling out of boundaries of participation (including our own boundaries) and the main findings of this phase.

8.6.1 Preparation of document of presentation of the project

We began this phase of distinction by preparing a short presentation document about it. In it, we declared that the main object of the project then was to find — with other people — possible roles that technology should have to improve the *way of life* that Javeriana University wanted to promote among individuals and in society (Documento_1_Javeriana, 1999, p. 1, my translation). For 'way of life' Diego Torres and I established a definition, which was intended to describe how the project fitted in what Javeriana was doing currently.

Although we made a reference to technology, we emphasised that our main concern was not technology itself, but the context where it was going to be used. As the context was shaping the possible roles that technology was going to have, we proposed exploring the context as the way of life of individuals.

8.6.1.1 Concepts on the way of life and improvement

In the above document, the way of life was defined as "a set of actions that can be distinguished as such in a particular context" (Documento_1_Javeriana, 1999, p. 1, my translation). This is a general definition under which we intended to gather any view, concern, action, idea or thought expressed by people. Also with this definition we wanted to recognise (in principle) any activity developed at Javeriana by anyone as relevant and contributing to the process of improvement. The set of actions to be identified could be divided into certain 'domains', and as a whole could comprise different domains which could have impact inside and outside Javeriana (Documento_1_Javeriana, 1999).

As individuals take part in different domains we expressed the hope that that everybody could raise different concerns emerging in the roles they performed as participants in different domains of interaction (either inside Javeriana University or in

Colombian society in general). We emphasised this to claim that in dealing with life in general nobody (not even ourselves) should be considered an expert for the project, as all of us were members of a society which we all tried to improve. By 'improvement' we meant (in principle) improving the way of life of people in the Colombian society. We considered that this brief definition was adequate to engage people in debating how conditions of the way of life could be improved, and this indeed included the conditions lived at Javeriana, and the actions developed there.

By using the above distinctions on the way of life and improvement, we expected to be able to bring to the surface different concerns, emotions and values that people had in their lives by declaring our project as part of the way of living. This expectation was based on four ideas. First, we relied on the connection between action and emotion declared by Maturana (1988 and 1998a) in which by inquiring into actions we could discuss the emotions involved. Second, we assumed a general commitment to improving the way of life in the Colombian society due to the existing situation of military conflicts, unemployment, insecurity in cities and so on.

Third, by listening to people and seeing what they were conversing about, we could establish a connection between the way of life people wanted to live and the concerns for 'others' that this way of life implied. We also wanted to find out if people would be declaring particular concerns that could be obscuring other concerns, in such a way that around the identification of concerns we could draw primary and secondary boundaries. Primary boundaries should be referred to those concerns expressed as relevant by people. These also could be distinguished by listening to the *actions* people said they were performing or to be performed to improve their way of life and other individuals'. Secondary boundaries should be drawn around those concerns or issues which people said that they considered important but they were not necessarily doing something about them in their daily life. When necessary, we would encourage reflection on primary boundaries by bringing our own 'secondary' boundaries derived from our engagement in the project and our desire to improve the way of life at Javeriana and Colombia.

Fourth, by identifying different boundaries we expected also to distinguish the values that they brought and they privileged (Midgley, 1992, 1997a and 2000). These values were also related to what people wanted to keep or develop in their way of life. When observing the way of life of people (including ourselves as taking part in the same context) Diego and I could also bring forth different concerns about what we

considered should be done to improve existing conditions. We could also raise our own concerns as individuals taking part in a way of life and also flowing through different domains of action in which we expected to identify concerns for action in relation to 'others', those considered legitimate in those particular domains (Maturana, 1988).

In the document of presentation of the project, we argued that there was a direct relationship between concerns and values, e.g. raising a concern denoted a particular set of values in relation to what one considers important in life. By discovering different concerns, we could identify certain values that people wanted to promote in a better society. In this way I expected to connect my ideas of the process of ICTP as related to emerging concerns of people (concerns not only related to organisational settings but to life in general) and driven by human values.

By distinguishing concerns in this phase of distinction, we could proceed later to discuss potential initiatives that would address these concerns in co-ordinated action.

8.6.1.2 Phases of the project proposed to people at Javeriana.

The document of the presentation of the project also explained briefly the two phases of the project and their aims. A phase with emphasis on **distinction**, in which we aimed to identify as many concerns as possible in relation (in principle) to how the way of life developed by Javeriana (inside and outside the university) could be improved, and possibly how information technology could play a role in this process of improvement. The second phase was a phase with emphasis on **design** (or improvement) in which we aimed to translate identified concerns into action plans to make the way of life that Javeriana wanted to promote within society (including life within Javeriana) a reality in action.

8.6.1.3 Personal interviews

We proposed to conduct both the phases of the project using two types of activities: personal interviews and group workshops. We decided to choose these two types of technique to gather information for the following reasons. A face-to-face interview would allow us to engage emotionally with the interviewee regarding the concerns that a person had, in other words to 'flow' in interaction with the interviewee. An interview would allow people to express their concerns at that moment, not only

those related to a job function but to their participation in society in general as members of a family, or as citizens, or as members of any association. Also an interview would give us the opportunity to identify our own concerns when deciding to ask more details about people's answers. By identifying the main concerns of people we could start distinguishing some primary boundaries that were defining relevant knowledge and people in the process of exploring possible roles for information technology at Javeriana and inquiring about improvement.

By identifying primary boundaries, we could inquire in the interviews why these boundaries were important and perhaps why they were emphasised. The latter aspect can be considered a starting point to enquire about the potential 'blindness' that certain concerns generate in individuals in order for them to be able to 'see' other concerns and people. If we noticed that there were some other 'secondary' concerns accounting for the distinction of secondary boundaries, we could further inquire about them. This was planned in order to get a better idea of what and how some possible secondary boundaries would operate in accounting for marginalised elements that should be considered if conditions of the way of life of individuals were going to be improved with or without technology.

As we also wanted to respect people's concerns as legitimate equally with those of anyone else (Maturana, 1988), we also saw in interviews a way of keeping the confidentiality of the information that we gathered. With interviews, we could also analyse and classify the information easily by keeping an individual record of concerns exhibited at a particular moment in time (including our own concerns) by individuals. Face-to-face interviews would also allow us to discuss issues 'in private' with certain individuals if issues were to be considered too delicate to be made public or discussed with other individuals exhibiting opposite views.

From our methodological framework, the individual interview was an important way of identifying and respecting each individual as an Autopoietic system with a particular history of interactions (Maturana, 1988), which was determining — at the present moment of interaction — the set of concerns exhibited by him/her in relation to his/her own participation in different domains of actions.

8.6.1.4 'Distinction' and 'Design' Group Workshops

These two types of workshops (one referring to workshops in the phase of distinction, the other referring to workshops in the 'improvement' or design phase), on the other hand, would give us the opportunity to identify some concerns 'shared' by a group of people, and also 'trigger' some interactions to address these concerns. In the 'distinction' workshops, we could facilitate discussion on issues of concern arising among participants; this would also allow us to identify different boundaries exhibited by groups of stakeholders or individuals themselves. In case of us being short of time, the conducting of workshops would also allow us to invite people interesting in taking part to discuss issues simultaneously with others.

In the 'design' workshops, we could also use the ideas of systems-methods aimed to produce definitions or action plans which were made collectively. This was the case for example of Soft Systems Methodology (SSM) (Checkland, 1981) and Interactive Planning (Ackoff, 1981). Following Midgley (1997a and 2000) and Jackson (1999), within these methodologies there are methods which could be used in a workshop to guide participants towards defining issues and actions they considered relevant to improve existing conditions of life in society. A description of the format of the workshops will be presented later in this chapter (section 8.8).

In both types of workshops we would be able to challenge concerns identified as boundaries. By proposing the distinction of different boundaries around elements 'left out' by people as not explicitly included or by proposing our own concerns as being considered for future plans, we could provide a critique on existing and accepted boundaries towards what was considered 'improvement' in the way of life of people in society by individuals.

For the phase with emphasis on design (improvement), we expected that interviews and workshops would allow us again to distinguish different concerns regarding actions that should be designed and implemented to improve living conditions in the way of life lived by people. We were aware of the fact that not necessarily all the different concerns and issues identified were going to be related to the design and implementation of information technology. We would be able to distinguish primary and secondary boundaries regarding what should be done, who should be included, what methods to use, how plans should be defined and what considerations should be taken into account to implement actions (legal, financial, institutional, etc).

By interacting directly with people, we would also be able to raise concerns that we considered had ethical implications. Also we could discuss implications of concerns raised by people and not necessarily shared by others. In interaction we could also see how the issue of 'dialogue' at Javeriana was managed and what effects it was producing.

8.6.2 Presentation of the document to Javeriana's members of staff

During the first two weeks of the project, the document of presentation described in the previous section 8.6.1 was shown to a number of people who initially, we considered should be informed about the project and could give us an official recognition of the start of the same. This people included two of the pro-vice-chancellors of the University (Academic and Human Resources[88]) as well as the research director.

For us it was important to address those members of the organisational hierarchy who we considered could give us important support and feedback throughout the project. As was mentioned before (section 8.4), Javeriana is a strongly hierarchical organisation. Also, we intended to gain recognition as a research team at Javeriana, and we considered that the best way was to deal in the first instance with those responsible for research at the institutional level.

To the above people, we explained the document and also the purpose of the two phases mentioned for the project. According to my own constraints of time for the project[89] and considering the academic calendar of Javeriana[90], these stages needed to be completed in a period of 5 months (initially). In the presentation of the document, we also mentioned that our purpose was to move beyond organisational boundaries, in order to consider concerns of other people not necessarily involved in the day-to-day living of Javeriana but either affected or benefited by Javeriana's

[88] Perhaps the name is misleading, as there does not seem to be a direct English translation for the position of "Vicerrector del Medio Universitario".
[89] I had agreed with my supervisor to conduct an exercise of no more than six months long (March to August 1999).
[90] Javeriana's annual academic calendar is organised into two semesters, with a period of two months in between (mid June to end of July each year). By conducting the project between March and July 1999, we could have better access to staff and students, and we could also have time to finish commitments pending at the end of July.

action[91]. We answered the questions these people had about the document or the project in general.

After presenting the document, we then proposed to the senior management at Javeriana (research pro vice chancellor) a preliminary list of people to be interviewed for the first phase of the project (distinction). This list contained a group of six administrators at Javeriana plus three members of the academic staff as well as two people whom we knew to be in charge of some project initiatives related to the use and implementation of information technology at Javeriana. We also proposed to interview 'some' students, bearing in mind the possibility of interacting with students from the students union and the computer science engineering department. In this occasion we did not specify the numbers as we expected first to gain access to them. We also said we were going to interview 'other' people, to account for the possibility that we could engage in interaction with others.

From autopoiesis, it can be said that the above two possibilities obeyed our flexibility to flow in interactions with others (Maturana, 1988). We also wanted to keep open the possibility of 'rolling out' the boundaries of participants if we considered that other people should take part in this phase (Midgley and Milne, 1995). Diego made this preliminary list of participants. I agreed with him in his choices, as he knew most of the people involved and from his experience of being involved in previous research projects at Javeriana; for me this list was a good starting point.

As a result of presenting the document, we got the approval of the research pro vice-chancellor to begin interviewing people, and the support and involvement of those to whom we presented the document. We modified our initial list of people to be interviewed by taking into account other individuals the pro vice-chancellor considered should be interviewed. Three more administrators and one academic were added to the initial list. The research pro vice chancellor also delegated to the director of research, Dr Pablo Morillo, the task of telling those who had been listed to be interviewed. We provided a modified version of the list and an e-mail message was sent to the people in the list.

[91] The above would allow us to interview other people who we considered should be taking part in the stage of distinction or in the stage of improvement; we wanted to keep an 'open list' of participants according to how the project unfolded.

In one of the meetings of presentation of the project to staff at the Computer Systems Engineering department we received an important suggestion. Some of the terms used like 'way of life' or 'boundaries' were not fully clear. We decided that we were going to employ similar terms in case of misunderstanding or in need of clarification. For the next sessions, we chose the terms 'situation' to account for 'way of life' and 'limits' to account for boundaries if the audience of any activity asked for further clarification.

8.6.3 Interview: Concerns and desires in the way of life promoted at Javeriana University and in the Colombian Society.

In this section the personal interview conducted during the phase with emphasis on distinction is described. The description includes the format of the interview and the relationships between this format and the framework described in chapter seven of this thesis, including the 'rolling up' of boundaries of participation.

8.6.3.1 Purpose and outcomes of the interview

The purpose of the interview was to engage in interaction with some of the people that were taking part in the ways of life at Javeriana University and in the Colombian society. We intended to co-emote with interviewees through reflection directed at raising and sharing different concerns, issues, values and aspirations related to how these ways of life could be improved. The questions asked aimed at inviting people to such type of reflection and to trigger the need to address elements identified in action. It was not the purpose of these questions to obtain specific facts about issues of concern but to gain an appreciation of the ways of life of individuals and how they could be improved. Hence reflection was also directed to invite participants to identify issues and people that were marginalised from the mainstream of decisions.

With these questions, different elements could be collected (see section 9.3.1 of this thesis and Appendix 1, section A1.3) in order to be addressed in the phase with emphasis on design (improvement) with the help of systems thinking methods, considering the ethical consequences that privileging or marginalising them could have for the wider society.

8.6.3.2 Format of the interview

We proceeded to prepare the format of the interviews for the phase of distinction. At Javeriana, we named the exercise to be conducted 'Desires and concerns in our way of life at Javeriana'[92]. As said, the purpose of this exercise was to promote reflection around concerns that people (including us as researchers) had in relation to the existing conditions of the way of life that was lived by those involved directly or indirectly in the activities developed at Javeriana.

Previous to conducting the series of interviews Diego, Adriana and myself made a selection of photo pictures from Colombian newspapers and magazines. We considered for the selection that these pictures should represent most of the issues of concern surrounding life in the Colombian society at that present time. For example, we selected a picture of a Colombian family attending an exhibition on technology innovation. We thought that it could represent the concern of some groups of people that wanted to bring technology into the Colombian society and to different economic and social sectors. It could represent the value of equality as the access to different individuals (parents, children) to new developments in technology and their benefits.

Another example of a picture selected was that of homeless people collecting garbage from a waste disposal site. It could represent concern with marginalised groups (unemployed) and the possibility of giving them work. It could also represent a concern with the state of development of some cities, and how educational programs were (or were not) preparing people to consider poverty, inequality, health conditions and urban planning as issues of concern.

We expected that when participants in the interviews saw and chose some of these pictures, feelings of being concerned about 'others' and about current conditions of life in Colombia were going to be triggered in them. We expected to achieve a type of 'emotional engagement' as a disposition for the action of reflecting (Maturana and Varela, 1987; Maturana, 1988), and perhaps to be able to take part in the act of defining a plan to address concerns and issues identified.

[92] This exercise took its ideas from a similar one conducted by Susan Weil at Hull University in 1998 (Weil, 1998).

We expected that one of the outcomes of this reflection based on the pictures was an emotional engagement from the participant with different issues of concern about the way of life at Javeriana and Colombia as well as his/her willingness to take part in further workshops in the project for the phase with emphasis on design (improvement). Another outcome was the set of concerns, ideas and values expressed by the participant and collected in the 'enriched picture' (see section 9.3.1. of this thesis and Appendix 1, section A 1.3) which was going to be used during the phase of design (improvement) to foster reflection on debate on how the ways of life of people could be improved.

During an interview, we started by explained its purpose to the interviewee. We invited the interviewee to consider him/herself not only a member of Javeriana but also a member of the Colombian society. Then we brought the pictures out and asked the interviewee to select the three or four most ***relevant*** pictures to which he/she felt identified as a member of the Colombian society and as part of that, as a member of Javeriana. The identification established a relationship between the pictures and concerns that were considered relevant for the current situation in society by an individual who was taking part in it (by doing something or being affected or involved).

From the above selection, the interviewee could choose up to four pictures[93]; they should represent the concerns he/she had at this particular moment, either as members of society in general or as members of Javeriana. Individuals could choose the focus of their concerns. Pictures could show more than one concern and they could be related between them if an interviewee wanted to do so. He/she should choose the pictures in a period of no more than five minutes.

During selection of the pictures, we also encouraged the interviewee to think of his/her life as a whole composed from different 'scenarios' or domains of actions. This follows the idea of human beings as Autopoietic systems, which flow through different domains of action in which there are different concerns related to action. These concerns emerge in the way of life of individuals, more specifically in their participation in different domains of action, in which a particular concern for 'the other' (including oneself) is developed (Maturana, 1988; Córdoba et al, 2000).

While the interviewee was selecting pictures, we as researchers also selected our own pictures (three or four), as we are also individuals concerned with what is happening in the way of life we live and in the domains of action that constitute it. We stated that we should be honest with ourselves and select those pictures that reflected our own current concerns at the moment, not necessarily those which, we had selected before in a previous interview (if any).

By taking part in a series of these exercises we as researchers had the opportunity to deepen our inquiry into our own concerns and broaden our reflection by sharing them with others. We expected to have different concerns at different times, as a result of our 'flow' in interactions with others (Maturana, 1988). Part of that flow in interactions was indeed being generated by the project. These concerns changed through time. Personally, I could realise that through time I was making some of the concerns exhibited by other participants in the project my own. I was gaining 'structural couplings' with people at Javeriana.

In our methodological terms, we hoped with the above reflection on pictures to be able to distinguish different boundaries through the identification of concerns associated with pictures; these concerns were emerging in the way of life of individuals. We could then identify the values associated with boundaries (Midgley, 1992). We distinguished between concerns, boundaries and values. For us, the first referred to a kind of 'preoccupation for action', involving people (including the person him/herself). The second (boundaries) referred to the limits to the action(s) identified as relevant from a concern[94] in relation to the people and issues that were included, excluded or marginalised by a boundary. The values were referred to attributions that actions had as being recognised by others. As was said in the previous chapter of this thesis, both boundaries and values have ethical consequences for the actions, issues and people that they privilege (Midgley, 1992, 2000; Midgley et al, 1998). They also define important considerations about 'others' with whom action is performed (Maturana, 1988).

After selection of pictures by the interviewee and us (normally the two of us, Diego and I, took part in the interviews), we asked the interviewee to answer (mentally or by

[93] In selecting the pictures, we suggested that one picture could account for more than one concern; that depended on how a person saw his/her own concerns reflected in the picture.
[94] This definition seemed to be more accepted by participants who suggested that the term 'boundary' did not make much sense for them.

writing) the following questions (Documento_2_Javeriana, 1999, p. 1, my translation) in no more than ten minutes:

- Why do these pictures matter for you? What do they represent in terms of concerns or desires?
- Are there any ethical conflicts that could be identified from the pictures? What are they?
- What personal values do you see reflected in the pictures?

The above questions were related to the following aspects. First, we wanted to make sure that people brought their own personal concerns: those which really mattered to them in their own lives. Second, we wanted to explore if they were able to distinguish a kind of contradiction in their own way of life, as some of the concerns about 'others' identified were demanded from individuals which they found difficult to reconcile in their flow through different domains of action (Maturana, 1988). Third, we considered it essential to invite people to reflect on their own values in juxtaposition to values that they could be influenced by (either by taking part in the activities of Javeriana or any other set of domains of actions).

The use of pictures and questions proved useful to make people reflect on their own way of life and how they saw the different situations that could be improved. Individuals could see themselves as members of a society, engaged in various domains of interaction and with particular concerns. Some of these concerns (for example, concern for peace and prosperity) were shared by different people from different backgrounds, inside and outside Javeriana. Other concerns (for example with improving the quality of education) were seen in different ways regarding what could be done (adopting international standards, increasing the wages of teachers, allocating more time for research).

By asking individuals about possible ethical conflicts as well as values they saw reflected in the pictures, we intended to foster reflection about different emotional engagements and concerns that individuals had when living in different domains of interaction with others. This reflection led us to identify different boundaries exhibited by people and the elements lying between them. For example, one individual interviewed selected a picture that contained one person giving technical instruction to a peasant. For him, there were two concerns identified. One concern was to transfer the best 'expertise' from abroad to students at Javeriana. Another concern

was to contribute as a citizen to increase the possibilities of education of marginalised groups of people. These two concerns bring different elements to be privileged in terms of issues and people that can be seen in the following distinction of the boundaries that they draw upon:

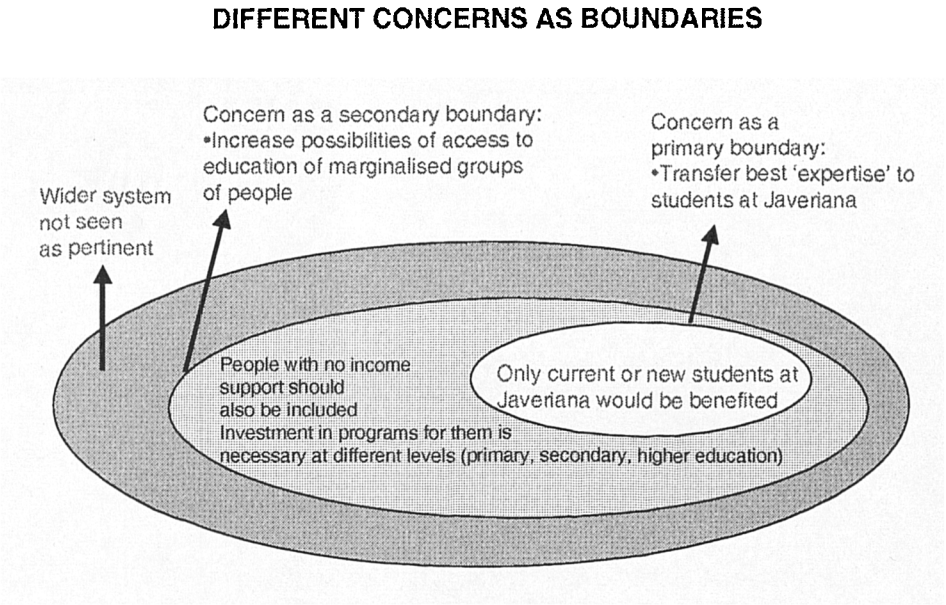

Figure 8.2. Different concerns as boundaries in the phase of distinction.

These potential 'conflicts' that can be seen in the above figure were going to be used in the phase with emphasis on design (improvement) in order to foster debate with different individuals involved in defining initiatives for action. The information gathered from the interviews was collected in a big 'enriched picture'[95] which contained different ideas, concerns, values and aspirations about the ways of life at Javeriana and in Colombia (see section 9.3.1 of this thesis and Appendix 1, section A1.3). This picture was used as input for debate for the phase of design (improvement). In this phase, the different elements identified could be addressed in action by designing different initiatives and plans, and the boundaries that they were privileging could be subject to reflection and criticism.

[95] The 'enriched picture' will be explained in chapter nine of this thesis, section 9.3.1.

8.6.3.3 Sharing impressions about the way of life in society

After the interviewee reflected on the above questions, he/she was asked to share his/her impressions about the pictures and questions formulated. We aimed not at imposing our own 'explanation' on how the interview should be conducted or how concerns should be reflected in the pictures available. Instead, the interview was seen by us as a process of learning, in which we could also see our own boundaries in relation to what was important to cover in the interview and could distinguish the interviewee's boundaries. Also we wanted to remain as open as possible to co-existence with others in the type of interaction we were promoting. If the interviewee wanted to proceed with the interview in a different way, we considered the options and aimed to establish a common way forward.

If the interviewee wanted to share his/her answers in relation to the questions, we set up the following roles among us (Diego and I). One of us was going to be the 'interviewer', the person in charge of conducting the interview and helping the interviewee to reflect on some of the issues that he/she was raising. Also the interviewer should try to challenge some of the concerns expressed by the interviewee with the following questions:

1. Why do you emphasise this concern or issue?
2. Why is it so important to include this concern or these people?
3. If action has already been taken along these lines, why has not it been successful?
4. What or who else should be included if action is to be taken in the future?

8.6.3.4 The role of the interviewer

With the above questions, the 'interviewer' should be able to explore in more detail the concern expressed as part of the way of life of the interviewee (current or desired). With question number one above, we wanted to listen to the explanation given by the interviewee in relation to a justification of a concern as driven by a braiding of emotion and reason (Maturana, 1988). This explanation should be also related to the actions that an interviewee considers essential to perform in a particular domain of action. In the explanation, there should be a reference to other people with whom this concern was going to be 'lived' or was already being lived in interaction.

With question number two above we expected the interviewer to be able to identify those 'others' with whom the interviewee feel concerned about issues expressed. In that way we could see the ethical concerns for others that had arisen in the domains of actions in which the interviewee was immersed, and the implications that these concerns had for the possibilities of including 'others' up to now not being considered relevant.

Our interest in asking about the recorded 'failure' of action (question number three above) had to do with the need of considering other issues that could be affecting the engagement of individuals (including the interviewee) in making a concern 'happen' in action. By asking about 'the causes for unsuccessful action' the interviewer had the possibility of identifying other concerns that perhaps were seducing individuals from being fully engaged into action in a particular domain (Maturana, 1988). In that way, the 'failure' distinguished could partly obey the engagement of people in other domains of action, which they considered more relevant.

The last of the above questions (question number four above) was designed to include critical reflection on the potential inclusion of 'others' for future action. The interviewer could then bring his/her own boundaries to debate in relation to what should be done and who should be included to address the concern identified by the interviewee. This distinction of boundaries could challenge the 'primary' boundaries of the interviewee by enabling him/her to identify 'secondary' boundaries in which there were elements considered as 'important' by him/her but not addressed in the design of actions or initiatives.

Nevertheless, the inquiry about the above questions was flexible. The interviewer could choose to ask some or all of the questions in order to motivate reflection according to what he/she perceived as being relevant to ask to the interviewee at a particular moment in time. This obeyed the need to follow the co-emotioning that interviewer and interviewee had at the particular moment of interacting, and to avoid imposing an explanatory path of objectivity without parenthesis in the interaction (Maturana, 1988).

The other role, that of the critical writer, will be covered in the next section.

8.6.3.5 The role of the 'critical writer'

During the interview, it was agreed that one of us who was not the interviewer should play a complementary role to the interviewer. We named this role the 'critical writer'. During the interview, the critical writer was in charge of taking detailed notes about what the interviewee and interviewer say. He/she also helped the interviewer to be *critical about him/herself.* This meant that if the critical writer considered that the interviewer had brought to the surface a concern or issue in a superficial manner, he/she could intervene in the interview and propose going deeper into it. Also, a critical writer was 'monitoring' the performing of the interviewer, in order to avoid him/her emphasising a concern which he/she considered important as an objective reality (Maturana, 1988).

As Maturana (1998b) would say, one enters into a particular emotioning with others without realising it, and emotions of engagement or disengagement just come and go (Maturana, 1988). We needed to be aware of such possibility of engagement and disengagement in interaction, as a way of recognising our own Autopoietic condition. Also we needed such awareness as a way of being critical about a potential 'blindness' which is generated when interviewee and interviewer co-emotion together and leave out other concerns or issues that should be included from the critical writer's point of view.

8.6.3.6 Exploring boundaries of participation

After interaction guided by the above questions, the critical writer made a summary of those concerns, of which he/she was aware during the interview according to what he/she distinguished in the set of conversations. By listening to this summary, interviewer and interviewee could modify the content of it and add or modify the ideas so far gathered. Also the interviewee was asked about his/her impression in relation to the format of the interview. He/she could suggest any modifications to the format and we should take into account the suggestions made for later interviews.

We also asked the interviewee about other people, who according to his/her view should be included in the process of interviewing and in the project in general. As was said before, we wanted to roll out the boundaries that we had set up in relation to who should take part in our project (Midgley and Milne, 1995; Midgley et al, 1998).

In this way we modified the initial list that Diego and I had prepared to start the distinction phase.

8.6.3.7 Addressing other people and their concerns

As a way of concluding the interview, we also asked the interviewee if he/she considered it important that we should get in contact with those who were in charge of any project aiming at improving education at Javeriana. The reason for doing this is related to our methodology as promoting 'coexistence' with others and the domains of actions in which they were engaged (Maturana and Varela, 1987). We considered that there could be people who were already concerned with issues we identified in the interviews. There could be a domain of action (like a project) addressing some of the issues identified. We wanted to respect other people's engagements in action and engage ourselves with them in the domain of actions they were already interacting.

8.6.3.7 Managing and recording personal interviews in this phase

The appointments for the interview were co-ordinated by Adriana according to the interviewees' availability. After each interview, the notes were transcribed by the person who had played the role of 'critical writer' in a computer using Microsoft Word version 97. Each interview was named according to the name of the person interviewee. Each electronic file was in an electronic subdirectory of my computer at Javeriana University, and access to it was granted to Adriana, Diego and me via the network of the computer science department. This meant any of us could access the content of the interview and produce new files throughout the project. We conducted on average three interviews per week. We did each interview in an average time of one hour.

In most of the cases Diego and I were present with the person interviewed. In some others, due to time constraints, either Diego or I conducted the interview. After the interview was transcribed in an electronic file, the other person who had not attended the interview reviewed it and commented on it by talking or suggesting changes directly in the electronic document if he/she needed further clarification on the content. In that way we guaranteed a certain degree of revision.

Also as a result of these interviews, it was suggested that we take part in some of the initiatives that were being developed at Javeriana. These initiatives and our engagement in them will be detailed later in this chapter.

8.6.4 The use of boundaries when managing personal interviews in this phase

During the process of managing interviews in this phase of distinction, we became aware of some boundaries that emerged in interaction with the interviewees. This is detailed in this section by highlighting different aspects of the reflection made about boundaries.

8.6.4.1 Including and marginalising issues

The use of the notion of boundaries allowed us to identify certain issues that could or not be included within the process of inquiry. For example, we included some more pictures in our group at the suggestion of some of the participants, who argued that their concerns were not fully reflected in the pictures we had selected. That meant 'pushing out' the boundary of pictures representing the way of life to include what people wanted to include.

Also, at some point during the period of interviews for the distinction stage, we received some suggestions to modify the format of the interview. A couple of participants (Father Jorge Pelaez S.J, research pro-vice chancellor and Dr Ignacio Velez, director of the management studies department) suggested that the interviews could be improved if we left the reflection based on the pictures as optional. Also it was said that we could gain more insight into what should be done to improve the way of life promoted by Javeriana if we discussed with people possible 'actions' instead of concerns, and that if we could quantify the results of interviews in establish the priority of such actions. According to them, our approach seemed to them too abstract and at risk of not producing any concrete proposal for action that could be implemented.

To the above, we did not see any problem of including more pictures or having the use of pictures as an option during the exercise. We kept however the premise that reflection on concerns should precede the definition of actions, as any concern which emerged in interaction (via language) was inevitably going to influence posterior action taken (Maturana and Varela, 1987). This obeyed the principles of the

methodological framework we were using. We made clear to the above two people that this needed to be done according to our rationale.

In terms of the use of the methodology, the above situation can be as a conflict between concerns exhibited by different stakeholders taking part in a situation. This conflict can be understood as a conflict between two boundaries. One boundary is the primary in which action is privileged. There is another — secondary boundary (ours) —, in which the use of pictures, the definition of concerns and actions are privileged. Between those there are some elements, which lie on the margins (using pictures, defining concerns) and are seen by stakeholders in a different way (sacred or profane). For us conflict could be resolved if we invited those defending the primary and secondary boundaries to recognise the elements contained in one of them as relevant (sacred). In this case, the secondary boundary already contained elements in the first boundary (some quantifiable facts) plus some others (concerns, values, and the use of pictures); but these others were seen differently by different groups of stakeholders. This can be seen in the following figure:

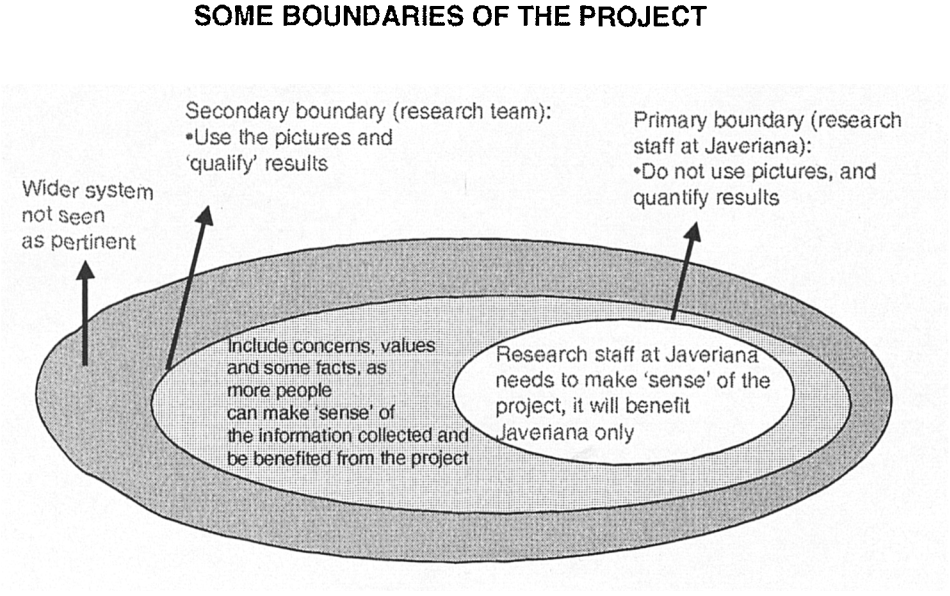

Figure 8.3. Different boundaries about 'what to do' in the project.

By talking to the people who had made the suggestions, we managed to convince Father Jorge Pelaez of the need of identifying concerns, although we had to leave the use of pictures as an option. We could not establish the same agreement with Dr Ignacio Velez, as for him definition of actions should be privileged. He argued that doing so could also save us some working time in the project. To the above suggestion, we decided to go ahead in identifying concerns, keeping the pictures as optional and leaving the definition of actions as a later stage. As will be described later in the next chapter, this lack of agreement with Dr Ignacio Velez influenced his participation in the project[96].

From the above situation we realised that the use of pictures and reflection on concerns also proved useful to distinguish simultaneously the different concerns of groups of individuals and groups of stakeholders who were taking part in common domains of action. This use became a way of putting the methodological idea of 'distinguishing' concerns into practice. However, in making our own concern of 'inclusion' more practical, we had privileged a boundary, and this had implications for action. It was our own boundary, obeying our own concerns.

What we did about the above when we privileged certain elements of what to do was to stabilise one boundary. However, conflict was not suppressed. The use of boundaries, it seemed, provided an interesting way of reflecting and acting, but did not provide any grounds for dealing with conflicts which emerged when one boundary is privileged (Midgley, 1997a and 2000).

Hence, during the stage of distinction, our idea of 'emerging' concerns put into practice allowed us to be more 'open' to the way of life and people within it. The use of boundaries however, helped us to explain phenomena related to our own understanding of a situation. *It seemed that the use of the notion of boundary could enrich our a-posteriori reflections about engagement of people in different domains of action, providing awareness on the consequences that living a concern with others had in relation to marginalised elements.* This was going to impact on my own reflection on ethical concerns. This will be further detailed and explained later in this chapter and in the next one of this thesis.

[96] In a later workshop conducted for the stage of improvement, Dr Velez openly criticised our methodology and did not collaborate in the definition of actions. This seemed to be a shared reaction with other participants. An explanation for this will be given later in the next chapter.

8.6.4.2 Rolling out the boundaries about participation

Through the interviews during the phase of distinction and as a result of asking people about 'who else' they considered should be interviewed we included different individuals in this phase. After the first round of interviews with people in the list, we included at their suggestion the following people:

- ✓ One member of the Jesuit community.
- ✓ One member of staff at the research direction.
- ✓ Two teachers of the architecture department.
- ✓ The library services director.
- ✓ One staff member of the library.

This list was completed from the period between March to May 1999. We had two constraints in relation to this list. First, we included as many people as participants being interviewed suggested. Second, the above degree of inclusion had to be limited by our own schedule for the project in relation to the phase of distinction. Although we were flexible, we had established a pre-defined constraint. This second consideration made us leave out some of the people suggested by participants. We did not have the time to interview them![97]. Nevertheless we managed to include the majority of people that were suggested in the interviews.

This inclusion of new participants meant that a 'primary' boundary of who should be included was being 'pushed out'. We were moving from a primary boundary in which only administrators and those responsible for projects related to the use of technology at Javeriana were included in the project (that boundary was privileged in principle by the senior management of Javeriana) towards a 'secondary' boundary. In this secondary boundary different members of Javeriana and others were included as participants by those people who had got involved in the project.

As will be seen later in this chapter, the distinguished boundary on 'who should take part' in the project was once more shifted when we decided to 'include' other groups of stakeholders that were not directly involved at Javeriana's daily way of life. This

[97] For example, we could not interview or interact in any way with people responsible for research into environmentally friendly agricultural practices who had been suggested by computer-science students in response to their concerns of finding a balance between technology and the environment.

was done as a result of our 'engagement' into different domains of action. Again, this was again a secondary boundary privileged by us as researchers.

Before reflecting further on the implications of the use of boundaries during this phase, another type of exercise that was used in the stage of distinction will be described.

8.6.5 Exercise for 'distinction' workshop: Desires and concerns in the way of life at Javeriana University and in the Colombian society.

This exercise followed a similar process to that of the personal interview described above. Its aim was to identify different concerns in the way of life of participants and relate them to the existence of primary and secondary boundaries. Within the process, critique was raised at the level of assumptions taken for granted about what should be done or who should be included in the 'living' in interaction of the concerns identified.

Preliminarily with this exercise, we interacted with the following people:

- ✓ Thirty-five students at the computer science department, first year.
- ✓ Thirty-two students at the computer science department, third year.
- ✓ Four lecturers of the engineering faculty and sociology department.
- ✓ Five student members of the students union of Javeriana (RAER)

8.6.5.1 Format of the workshop

Instead of being conducted with one person at a time (interviewee), the exercise was made each time with a group of people. The numbers varied from ten people to thirty[98]. In each session we invited people representing different groups of stakeholders (students, academics, members of the administrative staff, or members of a community[99]). As a result, some of the concerns expressed were shared with other individuals (perhaps due to the fact that people worked in the same area or they were engaged in common interactions within Javeriana). Nevertheless other concerns were expressed as coming from very personal experiences and ideas.

Previously to each workshop, we sent the document of presentation of the project and the document explaining the format of the workshop to each of the groups (Documento_2_Javeriana, 1999). At the moment of each workshop, the group of pictures was brought and spread on a table. One of us (Diego or me) explained again the purpose of the workshop and its content. After this, we invited participants to select three or four among the pictures which represented the most relevant of their concerns not only as members of Javeriana University but also those representing their concerns as human beings engaged in different domains of action (family, religious community, etc). We also handed them questions, which helped them to reflect on the pictures. These questions were the same used for the individual interview explained before in the chapter.

The selection of pictures and reflection took approximately ten minutes. Participants were asked to write down the answers or write key words that reflected their answers

[98] We conducted a couple of these group workshops in lectures with students of the computer science department from the first and third years.
[99] We rolled out the boundaries of who should be included by interacting with people who were 'outside' Javeriana as it will be explained later in this chapter.

to each of them[100]. We (Diego, Adriana and I) also selected three or four pictures. We aimed at being engaged with others in a common domain of interactions, and also to take our role as participants in the same reality.

Then participants were divided into three groups. Diego, Adriana and I took part each in one group. For each member of the group, an individual interview should be conducted using the same format as the exercise explained above (section 8.6.3 of this chapter). The format was explained to participants, including the roles of 'interviewee', 'interviewer' and 'critical friend'. These roles were appointed before conducting each individual interview. After each interview was conducted (with reflection made by critique by the 'interviewer' and 'critical writer'), a summary of the main concerns exhibited by the interviewee was produced by the critical writer and complemented by the interviewee and the interviewer. Each interview was supposed to be completed in about ten minutes. For the big groups (ten people), we allocated only five minutes.

Then each of the people interviewed was asked to provide an evaluation of the roles of interviewer and critical writer. This was related to two aspects: 1. Questions from both interviewer and critical writer which helped the interviewee best to reflect on the answers provided by him/her. 2. Questions which did not produce any useful reflection on the interviewer. Suggestions were taken further by those now playing the roles of 'interviewer' and 'critical writer', in order to improve the process of reflection and learning of participants (Weil, 1998). This evaluation was expected to last for no more than three minutes.

Now those being interviewed were allowed to refer to the ideas expressed previously if they considered they were sharing the same or a similar concern as their group fellows. No one was considered to have more expertise than anyone else, so we encouraged people to feel free to express their own concerns and also to be able to listen to others without criticising. The above aimed to generate a common feeling of respect for other people's views, and also to create a sense among the participants of being concerned about similar issues as members of the same society.

By doing this exercise we also expected that participants could co-emotion with each other (Maturana, 1988) and identify themselves as coming from particular flows of

[100] In the case that two people chose the same picture we suggested that one of them should select

interactions (Maturana and Varela, 1987). We expected that within this interaction self-identification of the participant's own concerns was going to take place, as well as the identification of shared concerns. About the latter, some of the concerns identified could be then shared in the present interaction, which for us was a *new* domain of action (with others) in which we tried to foster co-existence among different individuals (Maturana and Varela, 1987; Brocklesby, 1997; Midgley, 1997a). By promoting reflection we also wanted to motivate people to take further action about issues identified, although we considered that collective reflection was already a way of acting (Midgley, 1997a).

After each interview, roles were rotated among members of each group. We expected that each person could perform at least the three roles. This should contribute to people reflecting about their own concerns in relation to other people's. When the round of interviews was finished, each group was invited to summarise the main findings of the reflection and to present to the other groups. We gave each group about ten minutes to make the presentations. They were asked to nominate a presenter who provided a summary of the main common concerns and differences encountered in the process of reflection. The group wrote the main ideas on a flip chart; these ideas were presented to the rest of the audience.

We emphasised that the purpose of the presentation was to be able to listen to other people and their own concerns. We did not intend anyone to be 'corrected' or 'contradicted' by anyone else. Instead, we encouraged participants to listen in order to try to understand each person's point of view. After each presentation, members of other groups were allowed to ask questions around the issues presented and to contribute with their own view if they wanted to. During each presentation, Diego, Adriana and I took detailed notes of what each group was saying. At the end we also asked the groups questions. We could also raise our own concerns as participants in the interaction.

Diego and I particularly also asked questions which we considered relevant for us to be able to identify different boundaries among the groups of stakeholders or participants themselves in relation to concerns identified. We challenged concerns expressed and issues addressed by asking questions related to the existence of some elements we considered were being 'left out' by participants. We used the

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another one, but bearing in mind the concern (s) that led him/her to select the picture in the first place.

same questions that were used during the individual interviews in order to help participants to reflect on the existence of secondary boundaries of concerns identified.

At the end of all presentations, either Diego or I provided a summary of the main concerns that groups had identified, considering common issues and differences. We asked participants if they wanted to add something or suggest something to our summary; they could add to or modify the content of what we had presented. Then we mentioned to participants that we intended to address identified concerns more specifically by providing a set of new instances of interaction in a series of 'design' group workshops which constituted the main activities of the stage of improvement in our project. In those 'design' workshops, we said, we (all) intended to move from concerns identified to action plans. We asked participants if they were willing to take part in one or more of those workshops. For us it was important to get the acceptance of people in order to include them in the lists of people to be invited to take part in these group workshops.

With the above, what we were proposing was to create a new domain or domains of interaction in which we expected people to be less 'obliged' than 'seduced' by the need of taking part and defining action as part of their flow in their way of life. We hoped we had convinced them to co-emotion with us in conversing about how to improve the way of life at Javeriana and in Colombian society in general.

8.6.5.2 Organisation of the workshops

During the period between March to May 1999 we conducted in total four of the above workshops in the stage of distinction, which allowed us to gain a better appreciation of the issues surrounding Javeriana and the way of life it was contributing to promote in the Colombian society. We delegated to Adriana (our assistant) the setting up of the workshops. This included inviting people; booking an appropriate venue: and getting materials ready (pens, paper, flipcharts, and pictures). Each workshop lasted for no more than two hours. After each workshop one of us transcribed the main concerns gathered from the different groups and would produce an electronic document to be stored in the computer in the same way as the interviews described previously in the chapter.

8.6.6 Rolling out boundaries on groups of stakeholders and engaging in other interactions

As in the case of the individual interviews in the stage of distinction, at the end of each group workshop we asked participants two more things. First, if they considered someone else should be involved in taking part in the series of workshops that we were developing or the 'design' workshops we were going to have, if they would let us know so that we would contact them. This involved people from Javeriana or people who had any relation to Javeriana and whose participation they considered could be useful for the project. Second, we asked them if they also considered that we should get involved in other initiatives that were being developed at Javeriana to improve education.

We intended with these two questions to keep 'rolling out' the boundaries of who should be included in our project and also the boundaries of our own engagement in interactions. As one of the outcomes of this questioning, new groups of individuals were included in the process. These were:

- ✓ Seven student members of the Instituto PENSAR (Institute for strategic thinking at Javeriana).
- ✓ Six students (friends of a student at Javeriana), members of a Parish in Bogotá (the interaction with this group will be explained in the next sections of this chapter).

With the above groups, we followed the same format for the group workshop as we had done with the other groups. Particularly with one of the groups (PENSAR Institute), it was suggested to us that we gather the view of people like employees, businessmen, politicians, citizens, pensioners, etc, in relation to their concerns about how to improve the way of life of society as a whole. To this suggestion, we decided then that it was worth at least trying to identify some of the 'outside' concerns that could have been or could be lived by people already in the Colombian society.

In terms of our methodological framework, this new inclusion of participants meant to continue challenging some of the boundaries identified in relation to 'who' should be included. That was also part of our 'flowing' in interactions, as Maturana would have argued (Maturana, 1988). As part of the identification of other concerns, we say that

by engaging with other people not belonging to Javeriana, we could engage ourselves in other domains of actions, and identify other 'concerns' that also had relation to other 'others' as human beings.

Regarding the above issue of inclusion of new participants, the different boundaries that could be identified are represented in the following diagram:

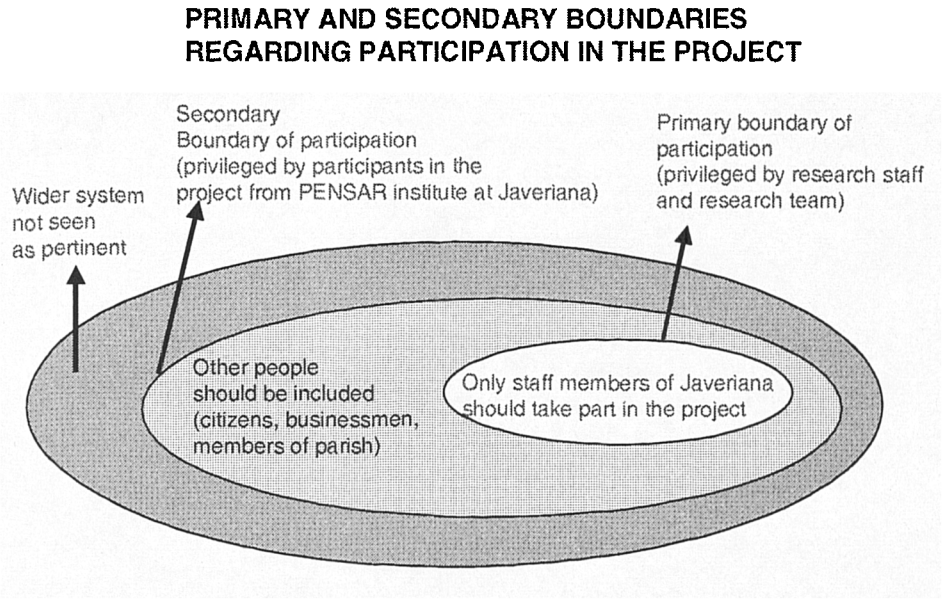

Figure 8.4. Distinction of boundaries about participation in the project.

We followed the idea that in relation to concerns as privileging certain elements at the expense of others, the identification of boundaries and the ethical issues that this identification was bringing could have wider implications for society as a whole (Midgley, 1992, 2000; Midgley et al, 1998). There was then, the opportunity to explore these implications and reflect on the consequences that any adopted boundary in relation to concerns for others (including issues) would bring to the rest for society. For example, the concerns of citizens (e.g. having a more egalitarian society) could be different from those exhibited by students at Javeriana (e.g. setting international standards for education which implied increasing the tuition fees for students). The consequences of privileging these concerns of students could affect citizens (e.g. less citizens being able to afford studying at Javeriana) unless further debate on consequences of these actions was taken.

Moreover, we also considered that it was 'ethical' to include other groups of people and give them the opportunity to express their concerns. The issue of ethics started to appear in our project and it developed through it, as it will be explained through the rest of this chapter and in the next one.

8.6.6.1 Transcending the boundaries of Javeriana

Once the possibility of exploring the 'outside' of Javeriana was accepted by us (Diego and I mainly), we made a list of groups of stakeholders who should added to be included in the stage of distinction. Following also the suggestions made by participants, we defined that it was worth interviewing the following groups (Documento_2_Javeriana, 1999, modified to include other participants):

- Businesspeople. It could be the case that they had concerns in relation to the type of education that Javeriana was fostering in students. They could need at that particular moment a different type of professional than the one being educated at Javeriana.
- Citizens. We wanted then to explore concerns of people living in Colombian society firstly in relation to the type of education that they considered was needed at the higher level.

At that point we considered that we had restrictions of time and resources allocated for the project, so it was essential that we used our 'contacts' with people in the above groups. We also believed that we should be engaged with people for whom our work at Javeriana did not sound totally strange. We then moved the initial deadline for finishing the phase of distinction to include our engagement with new groups of participants representing the above two types of stakeholders.

8.6.6.2 Engagement with a group of young people in a Parish

We then took a couple of opportunities (contacts) that we had available to push out the boundaries of participation to the 'outside' of Javeriana. The first opportunity to interact with people from 'outside' Javeriana came when one of the students of the computer science department approached us to ask if we could do one group workshop with his peers at a parish in Bogotá. He wanted us to help him with defining more clearly a set of initiatives that young people were going to carry out at a parish in order to improve the services that this parish was developing for young

people living in the surrounding neighbourhood. This student had known about our project and about the use of systems thinking methodologies at Javeriana. We considered that by supporting we could get then a grasp about what 'citizens' were thinking of their own reality composed by different domains of action. We could identify their emerging concerns if we were able to interact with them.

With the above group (seven people), we developed one workshop in which they took part and reflected with us about our concerns as 'citizens living in the Colombian society'. Participants were aged between 20 and 35 years. With participants, we were able to identify issues that were related to the promotion of a national identity among young Colombians as a way of achieving a degree of peaceful coexistence in the country. This and other issues enhanced our understanding of concerns about how to improve the way of life of individuals in Colombian Society. Other findings are reported later in this chapter. The experience also allowed us also to reflect about our own concerns as citizens and also to reflect about the concerns we had identified inside Javeriana in order to see similarities and differences.

8.6.6.3 Engagement with groups of stakeholders concerned with the use of technology in education.

June 1999 was the second opportunity to interact 'outside' Javeriana came from my previous experience as a computer science professional and ICTP practitioner in Colombia. In 1997 I had been engaged in a series of planning exercises with professionals from education, business and software and information technology sectors in the country. The exercises aimed at producing a series of policies and initiatives to bring the Information Society in place in Colombia (PNT, 1997; PNI, 1997).

In 1999 during the period of the project with Javeriana (1999), I was invited again to take part in discussions leading to a more detailed specification of actions of the National Plan of Information Technology which had been defined in 1997. Up to that moment, my involvement in the new series of meetings was purely due to my personal concerns and interest. I wanted to see how far the issues defined in 1997 had gone in relation to the implementation of policies defined at that year. However, by following the above considerations of 'including' more formally the view of other people outside Javeriana within the project, I decided to take further part in two

meetings of the Forum in which the above plan was being refined. These meetings took place in May 1999.

By my invitation, Diego also took part in these meetings. We both went to the meetings and joined one of the groups that was working to define detailed action to improve education in Colombia with the support of information and communication technologies in which there were six people working. We decided to join that group as we seem to fit well with the other participants who came from universities or companies producing information services related to education (like software or information services). We thought we could share some of the concerns identified at Javeriana with them. The group was composed of no more than ten people and the two meetings lasted for about three hours each. In each meeting we attempted to define concrete actions which contributed to the achievement of policies and goals stated in plans in 1997.

We followed the format already established by those organising the meetings to conduct the discussion. This format consisted of reviewing each of the goals declared in a plan to improve education with the use of technology, discussing their validity at the present time, and proposing concrete actions to achieve each goal.

By declaring ourselves as 'academics concerned with the use of technology', Diego and I felt we were accepted within the group. In these meetings we could express concerns that we had identified in our project at Javeriana and convince others that there was the need to have a 'critical' view about the use of technology in education. By 'being critical' we meant that it was necessary to look first at why technology was going to be introduced, what purposes of education the technology was going to support and which groups of society it was going to benefit or affect.

We also were able to gather interesting ideas that were developed by groups of individuals (like other universities, or software companies) in relation to the introduction of technology to improve educational processes. This 'up to date' knowledge was going to be used by us to inform our future interventions at Javeriana. For example, we gathered information about projects in which information technology was used in medical education. Also, there were initiatives to set up databases of educational projects using technology. Different universities could share the information contained in the databases through the Internet.

It seemed then that we were mutually informing domains of actions by being able to interact with different groups of individuals concerned with specific issues, and that we were ensuring that our engagement was critical in the sense of providing grounds to inform or challenge any initiative. Also, and between these mutually informing domains, we ended up playing a role of 'representation' of different concerns in different instances of debate. By being inside Javeriana (and later outside), we had gained knowledge of concerns coming from different groups of people (individuals, stakeholders) and that allowed us to 'represent' them in other instances where, in our opinion, they were being 'left out' of discussion or distinction of certain concerns. Conversely, we could bring some of the concerns identified 'back' to Javeriana, in order to enrich the debate and contribute with knowledge that we considered pertinent to the inquiry we were developing.

In terms of boundaries, what we were doing in these meetings was to challenge the primary boundaries that were privileged about improvement. Outside Javeriana, there was a primary boundary concerned with the use and implementation of technology. We were challenging it by arguing that there was the need to look at other issues about improvement that needed to be taken into account, for example defining the purpose of education. This issue was marginalised from discussion outside Javeriana. Inside Javeriana, a primary boundary of privileging the implementation of administrative information systems was challenged by proposing ideas gathered in the meetings outside Javeriana like using information technology in medical education and sharing information about educational projects.

However, by engaging in different domains of interaction, I was about to highlight an important issue which could not be fully understood from the perspective proposed by the methodological framework and ideas so far developed. This issue was the discovery of myself as a subject concerned with the ethics of the project. This issue was first manifested in a situation of disengagement of myself from certain domains of interaction, as will be presented in the next section of this chapter.

8.6.6.4 Disengagement from 'outside' interactions

Our participation 'outside' Javeriana allowed us to gain knowledge and to contribute to the enriching of discussion in different domains of interaction (inside and outside Javeriana). *However, after a while, we withdrew from this form of participation.* After two meetings with people concerned with the use of information technology in

education, we both became disappointed by the low level of participation and collaboration noticed in these meetings. Discussions seemed to be dominated by the opinion of some members of the group. This made discussions unproductive and consumed more time than we had allocated for them.

Personally I had other reasons to withdraw related to my role in this group. I was supposed to contribute to the definition of actions, which were going to have impact on large sectors of the population. However there did not seem to be a possibility of evaluating proposals with those who were going to develop them or to be affected by them. This was reflected in the low level of participation of groups and in the constraints on participation defined by the organisers of these meetings, as only 'experts' or people who knew about the subject were invited to participate.

Apart from constraints in time due to my engagement at Javeriana, I also considered that it was not *ethical* to define actions without an adequate degree of involvement from people who would be concerned. There was then an *ethical* concern in relation to my engagement with others. As I could not convince organisers to include different groups of people, I decided to withdraw from the meetings.

With the people from the parish, we considered we had completed our participation there as they seemed to be satisfied with having achieved a degree of identification of themselves and of having achieved a degree of cohesion as a group through the workshop with us. We felt that we did not need to encourage them further to take action to improve their way of life. I was also pleased to have done a 'good' thing through the project.

In terms of autopoiesis, the above personal withdrawals can be explained by a change in my own emotion as a disposition for action (interaction) with the other members of the group mentioned. At the beginning of our participation we were able to act in that particular group as a domain of action. Also, we were accepted as legitimate 'others' to take part in a domain of conversations due to well-defined criteria of acceptability (I suppose being academics concerned with the use of technology in education) (Maturana, 1988). However, after a while, other people and I were more seduced by other concerns. We moved on to different sets of interactions, which we considered more 'ethically grounded'. I was exhibiting my own ethical concerns, which had to do with involvement of other people and with taking part in other domains of interaction and with doing 'good'. What was the nature of

these concerns? How to understand myself as moving through different domains of interaction due to ethical concerns?

8.6.6.5 Moving to the next phase

At this point and after the above situation of our withdrawal from 'outside' interactions, most of the people who had taken part in interviews and group workshops at Javeriana had shown interest in taking part in a further phase of the project oriented towards 'design'. At Javeriana there was a general preoccupation of participants in interviews and workshops with doing something about the situation. We shared it too. The preoccupation was manifested in the expression of concerns *as concerns for action.* Most of the participants in the activities described above felt more comfortable after reflecting about their concerns with defining *practical actions* that, according to them, would contribute to improve the way of life of individuals, including themselves.

Also, the above situation of following my ethical concern also motivated me to reflect on the course of the project. At this point, I shared with Diego my concern of moving on to the next phase of . I argued that we had gained enough appreciation of the situation at Javeriana and in Colombian society in relation to the concerns that people were considering relevant to improve the way of life. My own engagement outside Javeriana had led me to think that it was more 'ethical' to continue with the project and finish it according to what we had agreed with the senior managers. I considered we owed this to ourselves and to the participants. Diego accepted that we should move on to the next phase.

To detail more the preoccupation of people involved in the project as well as the ethical concern arisen in myself as a researcher, the reflections made in this phase distinction are presented.

8.6.7 Reflections from the distinction phase

A summary of the most relevant findings at Javeriana is presented. This is divided into two parts: findings in relation to the content of the process and findings in relation to the methodological framework used. The detail of these findings and their representation in a series of charts are presented in sections 9.3.1 of this thesis as well as in Appendix 1, section A1.3.

8.6.7.1 Reflections from the content of the process

There were many findings that were encountered during this phase of distinction. It would not be fully possible to account for all the ideas, thoughts and impressions I gathered. However, a good account of what happened with the content of the process in this phase of distinction can be made. These elements were the result of a general willingness of participants to address the current situation and propose to do something (at least discuss!) about the current situation of the way of life of individuals at Javeriana and in Colombia (with or without the use of ICTs).

As a common issue identified during the inquiry, we noticed that people (including ourselves) were *very concerned and preoccupied* with the particular situation of Colombian society and desired to do something about it. People felt concerned and uncertain about a future way of living influenced by the guerrilla and paramilitary wars, criminal behaviour and violence in cities. Corruption in the government and private institutions; inequality in the distribution of wealth; lack of opportunities of access to education and its quality are also issues of concern that participants wanted to address in order to improve life in general. There was a general perception about the lack of consideration in planning of what is happening in other countries in the world. As can be seen, these issues are not all necessarily related to the use and implementation of ICT.

Regarding those issues concerning technology, interesting insights were gathered. For example, people saw the need to harmonise technology with institutional values. This meant that in any design or initiative, a reflection should be made on how a new technological product or services was going to promote values that Javeriana wanted to foster in all participants in education and hence in society.

Another concern identified was in relation to the impact of technology on the environment. People were concerned with the lack of assessment that the use of technology had regarding consequences for different groups of people involved and affected, and also for the environment. A more careful assessment was suggested.

By defining actions to be developed, people then distinguished a *tension* between their current engagements in interaction and the actions that they consider relevant. The general preoccupation derived from the identification of different types of

concerns for which actions were proposed. Addressing a concern is accompanied by a set of actions to perform; this is part of the awareness that individuals show when they express their concerns and issues. Action demands participation of different groups to do 'good', e.g. to improve conditions of the way of living. Action seemed to involve different groups of people (including the participants) in a series of *common* efforts, which would require people to reflect on their current engagements for these efforts to be developed. In that way, people are expected to contribute to 'improving' the way of life. But they saw difficulties in doing this.

For example, one of the concerns expressed by people is the lack of education in the country. By promoting an education centred in values of solidarity, community and peace, it was expected that children, young and adult people could start grasping the importance of recognising differences of opinion and thought in society, a condition that could guarantee peaceful coexistence among individuals. Suggestions like this were said to require the common concern of those who take part in education to work together towards promoting values like solidarity, community and peace. As some of the members of Javeriana take part in education, this effort should (in principle) include them as participants in education in Colombia.

When some individuals at Javeriana were asked if they could see themselves taking the lead in developing actions or taking part in any initiatives like the one proposed, one concern was that it was not clear how to do it. Another concern was that people felt they *were already engaged in various interactions at Javeriana, and that these engagements were 'good for them and for others'*[101]. Some participants saw themselves as members of an institution promoting Christian values in specific initiatives with specific plans to develop and goals to achieve in terms of coverage of education, financial targets, and so on. Hence, taking part in institutional 'doing good' was for most individuals also a way of 'doing good' in society. Faced with the possibility of 'including others in action' (also themselves by engaging in new domains of interaction), participants were not sure of being willing to surmount their current engagements and previous commitments.

The above seems to highlight the need to go deeper into this 'good engagement' of people in improving their way of life. Were there certain barriers to people engaging in interaction with others? Were different ways of conceiving actions for improving as

having different ways of 'doing good?' What does it mean to be and to do 'good' in different domains of interaction?

8.6.7.1.1 New actions seem to be defined 'outside' current engagements of individuals, on the grounds of being concerned about the 'good.'

Some of the people taking part in the project during this phase of distinction said that even if they felt really concerned on the need to develop certain actions to address distinguished concerns, they were not sure of how to overcome the situation of having to abide their actions by the institutional plans and rules. "I am not sure I have the time to engage on new activities", was one of the common answers noticed in people, even when they were asked to take part in further activities of the project.

As was said before, this lack of availability or disposition to take part in new domains of action was followed by a claim of doing 'good' in existing domains of action. In the current situation of underdevelopment (a concern expressed), there followed a suggestion of what to do. This was summarised as being a *good Colombian*, which meant, among other activities, to: do a job properly, take care of a family business, be honest in every matter, be a good member of a family, or being a good member of a religious community by following its principles. But what about new concerns arising from, and possibilities for, improving the way of life of oneself and others?

The above situations were better understood by me as a sign that in the expression of some concerns, people did not seem to include themselves when reflecting on the consequences of translating identified concerns into new domains of action. I noticed a phenomenon of **'ethical blindness'** towards new possibilities of action or other people (including oneself as an individual that can still improve him/herself). This is also manifested in the difficulties of individuals in engaging in new domains of interaction.

Moreover, this phenomenon of blindness also includes researchers engaged in activities we believed were 'good' to perform. When deciding that I was withdrawing from certain domains of action (outside Javeriana, for example), I argued that there were 'ethical' reasons for not taking part anymore in any interaction. I was asking myself about the right thing to do. Although the above could be seen as my own

[101] This will be also presented in the description of the phase of design (improvement) in the next

distinction, I consider that it was important within an intervention to distinguish the raising of ethical concerns from interactions and to refer to my own 'personal ethics' as a way of justifying decisions from my part. This influenced the further course of interactions with others.

When participants reinforce their need to belong to certain domains of actions, the issue of not 'seeing' others is difficult to address. Nor is the need to promote co-existence between different people taking part in different domains of action. Statements like 'doing well', or 'doing good' lacks any critical evaluation. Regarding this situation, some of the questions that arose at that point for myself were:

- Is the existence of different ways of doing 'good' a problem for the improvement of the way of life at Javeriana and of the Colombian society? If so, how can it be better understood?
- Who has defined these different ways of acting 'good?' Is there any way of discerning between them? Whose way is it?
- What to do about the researcher's own way of 'doing good?' Should it be ignored or considered further in interaction?

About these questions, our methodological framework seemed to provide some answers. However as will be seen in the next section, this answer leaves open questioning about the existence of different 'ethical' concerns in interaction with others.

chapter of this thesis.

8.6.8 Reflections from the methodological framework

It can be said that the use of the methodological framework proved useful in fostering reflection on those surrounding issues that people identified as affecting their lives. We gained a richer appreciation of people's reality and also of our living within some of the domains of that reality. As it was said in a previous section, the framework had also allowed participants the generation of potential actions that could be discussed further in terms of how useful they were going to be in improving the way of life of individuals in society. Critique was developed around the distinction of different boundaries influencing and being influenced by actions towards improvement. This critique was developed inside and outside Javeriana. New issues were brought to debate as a result of this critique and engagement in different domains of interaction.

As the inquiry unfolded, we came across the issue of the 'ethics' of the project and the existence of different ethical concerns in relation to doing good. Ethics, then, appeared at this stage of distinction as a frame of reference that is used to justify decisions of taking part in certain domains of actions (including performing the actions of those domains), withdrawing from others, or inviting people to take part in action. In the latter, the claim to ethics seemed to fit well with the nature of our stage of distinction in which we inquired about how to 'improve' the way of life of individuals including ourselves) in society. However, the reference made to ethics as improving seems to leave out reflection on *how* to perform actions related to improvement.

8.6.8.1 Our framework provided an explanation, but generated other questions

In terms of the methodological framework, and our engagement as researchers, the identification of concerns seemed to conform to the continuous engagement of individuals in certain domains of action, from which they acquire a stimulus towards being concerned about certain issues and certain people. Individuals flow through domains of action continuously; their participation in these domains seems to obey the need for them to do what they consider is 'good' or 'inevitable' for them. This is due perhaps to the need to reinforce their identity as based on their participation in the domains of action in which they take part (Maturana and Varela, 1987). People are seduced by explanations belonging to certain domains of action (Maturana, 1988).

In relation to what has been called 'ethical blindness', the possibility of raising different ethical issues was based methodologically on the openness to concerns that we had in the stage of distinction. The reference brought into the framework was that ethics could arise as a result for a concern lived in domains of action by a self, this concern being about 'others' (Maturana, 1988). Then, the emergence of ethical concerns also included researchers, if they considered that issues should be raised.

Also from autopoiesis, the existence of two explanatory paths about reality was proposed. Situations justified on the grounds of 'doing nothing but good' could be seen as following a path of objectivity without parenthesis when there is an exclusion of other possibilities of 'doing good'. As an initial answer given by the ideas contained within the framework, an invitation to promote coexistence between different people taking part in different domains of action was also considered as a possibility (Maturana and Varela, 1987; Maturana, 1988). That meant following the path of objectivity within parenthesis.

But an important question arises regarding our own 'ethical concerns' being raised and manifested in our participation in different domains of action. Could it be that we as researchers were having our own path of objectivity without parenthesis in relation to *ethics:* that of promoting 'coexistence' between different domains of action as an ultimate goal to achieve in intervention?

The ideas from boundary critique may then help to explain our concern for co-existence as a boundary that we were privileging. This concern could be seen as a boundary in which certain elements are privileged at the expense of others. *But if this is the case, on which grounds could our intervention be developed further if different boundaries bring different ways of doing good?*

It has been said that a conflict between boundaries is stabilised when one of the boundaries is privileged and hence the elements that it includes (issues, people) are considered relevant for any social design (Midgley, 1992 and 2000; Midgley et al, 1998). The nature of this stabilisation seems to depend on the context in which an intervention in social design is developed (Midgley, 1992 and 2000; Midgley et al, 1998). For the situation of 'ethical blindness' we needed to detail more how this stabilisation was going to take place if there were different ways of 'doing good' and we were challenging these from our own ethical perspectives.

So far in the intervention we had implicitly identified different ethical positions. The use of our framework had not caused any conflict with the set of institutional plans at Javeriana, as we had not engaged any initiative developing practical action. Up to that moment, we had just identified some concerns and possibilities for action regarding them. People were also expecting to learn from us about to how we proposed to address issues identified. This can be explained as having achieved a certain degree of 'coexistence' in our interaction with others, a degree in which at least different concerns and actions could be expressed. But to what extent was this degree 'good'? Again, this question seemed to be imbued with ethical content. A further exploration of the issue of ethics seemed to be necessary.

Hence, there was an area which although it did not 'fit' entirely in our methodological framework and needed attention: it was the area of ethics related to subjects like myself. At the time of the intervention I did not consider it essential to deepen the inquiry. Also, I hoped that by entering into the phase of improvement we could do something about it.

8.7 Conclusions

In this chapter, the experience and main findings of a phase of distinction in a project to explore possible roles of information technology at Javeriana University in Colombia have been presented. As a general perception, the methodological framework allowed us to identify different concerns of participants in the project in relation to how to improve the way of life of individuals in Colombian society. Concerns as they were expressed by most of the participants had an immediate connection with action. Some of these concerns had also established the need to go beyond a pre-defined boundary in relation to who should be included in the project. People who had not a direct relationship with Javeriana University were included as a way of pushing out the boundaries of the project and also evaluating the implications of addressing the concerns in relation to their implications for society as a whole.

The identification of concerns also brought a situation in which current engagements of people in interactions constituted an opportunity to promoting but also an obstacle to promoting new domains of interaction. As an opportunity, we saw that there were already established domains of action in which concerns identified could be addressed in order to define practical action. As potential obstacles, we had

identified different ways of acting, which might leave out some of the elements identified as relevant.

Also, the stage of distinction brought then an interesting issue about **ethics** into our project. With the identification of concerns there were also different ways of 'doing good' to improve the current situation. In relation to the participation of people in different domains (including researchers), ethics started to be reflected in the participation of individuals in different domains.

There was then the issue of how to discern between different ethical claims, if our concern for coexistence was going to be considered another 'ethical concern'. The unfolding of the project in the phase of 'design' (improvement) brought this distinction into discussion again, as will be presented in the next chapter.

Chapter 9: Ideas in practice: Exploring Possible Roles of Information and Communication Technologies (ICT) at Javeriana University in Colombia — Phase of design —.

9.1 Introduction

This chapter describes the activities performed and reflections obtained in the phase of improvement that was called 'design' at Javeriana when conducting the project "Exploring possible roles for information and communication technologies at Javeriana University".

Having identified different concerns, issues and actions that people considered relevant for improving the way of life within Javeriana and in Colombian society in the phase of distinction, and having received approval to continue with the activities of the project, we proceeded forward. The style of narrative adopted continues the use of 'we' when I refer to Diego and me, and 'I' when I refer to myself.

During this phase of 'design' (improvement) it was also expected that new concerns would arise as people were flowing through different domains of interaction, in which new preoccupations or issues could add to the interaction within these domains. This should then take us back to the phase of 'distinction' and would allow us to 'sweep in' different elements (concerns and issues) for improving social design (Churchman, 1979). In this flow of conversations and reflection, we were aware of the need to be engaged in two types of interaction: *exercises for design and critical engagement.* In the first type we would invite people to address concerns identified through the phase of distinction and we would facilitate debate about possibilities for action, and reflecting on the implications that any decision could have for the wider of society. To do this we were going to be critical about the boundaries adopted. In the second type, we would be taking part in different meetings of initiatives already taking place at Javeriana. Some of these concerns could have been identified also through the phase of distinction in our project. We aimed to challenge the assumptions by those taking part in initiatives by asking questions related to 'who else' should be included or considered in the decisions taken, and 'what else' should be included or considered regarding the consequences of any decision. To justify our questions we could refer to different concerns already identified through the phase of distinction

that people considered important to improve the ways of life of individuals at Javeriana and in the Colombian Society.

In both types of interaction we aimed at playing a critical role, challenging the boundaries that people privileged and reflecting on the elements that were being marginalised by any action or initiative.

This chapter will be developed as follows. A strategy designed to conduct the further intervention will be explained. Then the reflections made through different activities at this stage will be presented. Reflections on the issue of ethics will be brought forth again in order to discuss how the use of the methodological framework could be enriched with a deeper understanding of ethical views in a context of intervention characterised by the engagement of individuals in different domains of action. In particular, the discovery of myself as an ethical subject in the process will be described. This discovery will also be discussed further in later chapters of this thesis.

9.2 Defining a Strategy to Follow

When starting the activities of this phase, Diego and I were concerned with the existing situation of engagement of participants within different domains of action. We had received approval to continue in our project, involving the majority of the people that had taken part in the first interviews and workshops[102]. However, we still had questions like:

- ✓ What degree of participation should we expect from people?
- ✓ How could we (participants and researchers) design action plans that were going to be useful for Javeriana and for society in general?
- ✓ What if our credibility as researchers was a stake due to our own rationale concerning the methodology and our ethical concerns?

The above questions, the willingness of people to continue taking part in the project and other issues made us think of devising a strategy which, could address the possibilities for interaction we had come across and could guide us in the use of the methodological framework already defined.

[102] Most of the people (in principle) said they were willing to take part in further activities of the project. As the stage of improvement unfolded, attendance at the events became lower.

With the above ideas we defined a strategy as follows. The strategy consisted of working in two fronts simultaneously at Javeriana (at this time I had already finished my participation in domains of action outside Javeriana, following my ethical concerns). These fronts were called design exercises and critical engagement. They will be explained as follows.

9.2.1 Design exercises

These were group workshops in which participants would have the opportunity of defining and designing, in terms of initiatives and action plans, the way of life they wanted to live. To do that, we were going to use the set of concerns identified as well as different ideas, values and proposals gathered with these concerns during the phase of distinction. These are summarised in the 'enriched picture' of the phase of distinction in sections 9.3.1 and Appendix 1, section A1.3 of this thesis.

For a process such as ICTP, we were planning to do through conducting these exercises was to address different concerns identified with methodologies or approaches that we considered more appropriate to help in the definition or implementation of plans (Earl, 1993, 1998). Hence, we were going to enable the development of these exercises through the use of different methods coming from systems methodologies that we knew (like Interactive Planning, Soft Systems Methodologies and Critical Systems Heuristics), as well as our knowledge in traditional approaches to do ICTP[103].

Our role in these exercises was to facilitate debate and be critical about the boundaries that people (including our selves) privileged to influence their decisions and potential actions. We considered that this was important in order to develop awareness about the consequences that any action could have for the wider of society and the ways of life of different groups of people in it. In this respect, we were developing a more 'strategic' view of planning in terms of considering including different concerns and groups of people.

[103] I had gained personally knowledge of methods like Business Systems Planning, developed by IBM (Galvis, 1995) and a method proposed by García (1993) to obtain the information systems plan of an organisation. I had also collaborated in the development of an approach for ICTP at my job as an ICTP project manager in 1996 (Fundacion-Social, 1996).

9.2.2 Critical engagement

The second front of the strategy consisted of taking further the possibility of being critical towards the development of existing initiatives and projects. We called this front *critical engagement*. It consisted of interacting with people who were taking part in implementing projects, already addressing some of the concerns identified in the phase of distinction. Our participation was going to be focused mainly in challenging existing assumptions that we could identify and challenge with participants in a project or initiative[104]. These assumptions were in relation to two aspects: 1. what should be included in the initiative (in terms of issues or actions); 2. who should be taking part in the initiative as a direct participant, or considered as beneficiary or affected by the initiative (Midgley et al, 1998). In discussion, our purpose was to listen to what those developing an initiative were doing and to provide our views about some issues and groups of people that we considered were being 'marginalised' from the mainstream of discussion of the initiatives or projects.

With these two fronts we aimed at interacting with people in the domains of action where they were able to live their concerns, by respecting people's domains of interactions and concerns and also promoting our own concerns. Also we aimed to create new domains of interaction in which we could invite others to co-exist (Maturana, 1988) and to improve the way of life of all of us. The use of the boundary critique was going to be useful to identify different primary and secondary boundaries and to structure debate on improvement in the wider society by fostering discussion on these boundaries (Midgley, 1992, 1997a and 2000). The two fronts will be described as follows.

9.3 Design Exercises

In this front, we set up a series of workshops about issues that we considered we were concerned with. We called these workshops 'design exercises', as we wanted to engage people in designing how their way of living should be according to their concerns. In these workshops we invited people to discuss specific issues previously identified with the purpose of producing a design of *how* the situation about these could be improved.

[104] As will be presented later in this chapter, our notion of 'initiative' accounted for a set of actions aimed specifically at addressing a particular issue. Due to our background in computer science Diego and I

Our idea in the workshops was to expose the complete set of concerns and issues identified to discussion. In the first place, we expected to trigger emotions towards the concerns presented (Maturana, 1988) that could engage people in interaction towards defining certain actions which could be used to address these concerns.

Although it was not the main purpose of the exercise, we also expected that by showing people that other individuals with whom they had not interacted before (within Javeriana or outside it), had similar concerns, an emotional commitment with concerns identified was going to be gained. Such a situation could trigger an emotional commitment for joint action (Maturana, 1988, Bilson, 1996 and 1997).

We also aimed at debating with people the different consequences of adopting certain boundaries, which privileged issues and people in the initiatives and actions developed at Javeriana. To do this, we were going to employ the theory of boundary critique in relation to what should be done and who should be included in design (Ulrich, 1983; Midgley et al, 1998; Midgley, 2000). As a result of this debate, we hoped that some concrete actions were going to be developed by people involved at Javeriana. These actions could take the form of suggestions, to be included in initiatives or action plans to be developed, proposals to include in the management of the institution.

The design exercise will be described in relation to its preparation; its setting up; its format; the use of systems ideas in it and the moving between phases during the project.

considered that there was a similarity between this description and the notion of 'projects' that was managed by the people at Javeriana. There is no difference of usage of both names in this chapter.

9.3.1 Preparation: Re-design of 'rich' pictures as 'enriched' pictures

Initially, Diego and I had both planned to put the information gathered during interviews and group workshops in a series of rich pictures, that aimed at describing the current situation of the way of life of Javeriana (Checkland, 1981; Checkland and Scholes, 1990; Checkland and Holwell, 1998). This was supported also by the idea of mixing methods to address different research questions during an intervention (Midgley, 1990, 1997a and 2000) and on the possibility of doing so in a process like ICTP (Earl, 1993). Our concern here was to produce a comprehensive picture or set of pictures of the set of concerns, ideas and values expressed by participants. This picture should be 'emotionally engaging' for people taking part in exercises of design, i.e. it should foster reflection, discussion and further disposition for action (Maturana, 1988).

As the activities of the project in the phase of distinction unfolded, we noticed that the information we were gathering was enriched mainly with actions suggested by people, as was described in the previous chapter. We noticed that for participants it was more important to talk about actions than to describe other aspects (like cultural or 'political' aspects). The bulk of information gathered so far included issues related to what the current situation was, but also issues expressing what a situation *should be* in terms of actions that were associated with concerns by participants. For us, it was more relevant to gather these issues as they were associated with the way of life people wanted to life at Javeriana and in the Colombian society.

Although the inclusion of elements of the 'ought to be' in a situation is something that Checkland (1981) asks SSM practitioners to avoid when doing pictures of the 'real world', we considered that it was necessary to include actions in the picture(s)[105]. This was due to the need of people to feel that their suggestions had been included fully in the reflection about their world. We wanted to preserve participants' ideas as they were originally, as well as their trust in the project. We decided then to produce a big picture and name it an ***enriched*** picture. In terms of boundaries, we considered that the new boundary of this type of picture (including also actions as elements of the 'ought to be' of the inquiry) was more inclusive. It considered those elements that participants had seen as essential to improve the way of life of

[105] Checkland (1981), however, includes the 'ought to be' of a problem situation in the modelling of systems.

individuals in Colombian society. The picture can be seen in the following figure that contains a summary of concerns, values, ideas and aspirations. These elements are grouped into areas of concern, as it will be explained.

•Marginalisation in development
•Isolation of some groups from education
•Our identity in educational processes
•Education to create social consciousness
•Looking at the context of education
•Values promoted in education:
- •Religion
- •Solidarity versus indifference
- •Tradition
- •Community
- •Discourage the value of money

•Resources available for education
•How to help in the current situation ?
•There has to be leadership in the Colombian community to promote and sustain change
•What is the purpose of providing IS to education ?
•Who are going to be benefited ?
•We have double standards in our values.
•Society needs a collective memory
•Not everybody has the same perception of reality.

•IT is affecting the natural environment
•IT can help to improve quality of life
•IT needs infrastructure
•IT education should generate information about the situation of the country.
•IS should allow flexibility in lecturing and learning.
•Everyone should benefit from IT education

•Education should be 'integral'
•Need of more research
•IT and education should benefit society through projects, services.
•There should be links with industry and community.
•Students should participate in decision taking in education.
•Studens should help anyone in any region of the country
•What is the profile of IT students ?

•Education and IS to live with nature in mutual respect.
•The IS guide the search of information but do not replace people
•Images already provide an interpretation of reality
•Media creates ideal images of man

•Students should take educational opportunities to manage globalisation
•What is the model of society to follow ?
•Human resources should be a priority in society
•How to conduct change in society ?
•We should rescue the country side and see the impact of technology on it.
•Harmonise IT with living in society and in this country.
•One lives the values learned at home
•Tradition in universities influences education
•Why does everybody have to be a doctor ?

•There could be differences but a common project
•Individual talents and creativity should be fostered in society
•People should be commited to change.
•Different views can coexist.

Figure 9.1. The 'enriched' picture

Based on this 'enriched' picture, we provided a preliminary classification of concerns, ideas and values into some areas of concern that can be seen as a set of areas for discussion. These areas were:

- The Colombian context (upper left box)
- The future (lower left box)
- Understandings of information systems and technology (IT) (upper right box)
- Contextualisation of information in education (middle right box)
- Change in education (second lower right box)
- Respect for individuality (lower right box)

In the upper left box, we grouped those elements that we considered had to do with the *context* of the Colombian society. They were related to the need to address the

promotion of certain values, re-defining the purpose (s) of education, and situating education as a process which promoted the nourishment of diversity of opinions, cultures and views coming from different groups of people.

The lower left box contained issues that were related to the *future* of Colombian society and a desired process of change in this society. Some questions like 'what is the model of society to follow?' or 'how to conduct change in society?' were raised as important for the future.

In the upper right box we grouped elements that had a possible relation to the *understandings of information and information technologies in education.* It included issues of purpose of use of information and/or information technologies, and considerations when using information technology to support education or development in the country.

The middle right box contained elements that could be associated to the *contextualisation of information in education.* It portrayed elements aimed to explore relationships between educational processes, the needs of the industry sector and the possible roles that students could play when using their knowledge to improve existing situations in the country.

The second lower box in the right referred to issues and concerns regarding a process of *change in education* that could incorporate new practices, bearing in mind a new international context in which the use of information media could help instead of replacing people in the process of education. Education could still be a vehicle to harmonise the lives of human people with their environment.

The bottom right box of elements in the figure aimed to highlight some elements of *respect for individuality.* This entailed respect for the diversity of career interests of individuals, the possibility of developing a common project to improve society, and respect for the differences of opinion when developing this project.

A complementary explanation of the 'enriched' picture above can be found in Appendix 1, section A 1.3. With these areas of discussion identified from the 'enriched picture' we proceeded to structure debate about possibilities for action by setting up exercises of design workshops. In these, the information from the 'enriched' picture could be used to define potential actions to address the elements in

one or some of the areas identified and explore the implications of adopting certain boundaries for action.

9.3.2 Setting up exercises of design workshops

The enriched pictures were used in a series of design exercises whose format (Documento_3_Javeriana, 1999) is presented now. In these exercises we decided we were going to include all the people that had taken part in the previous stage. The format that was going to be followed was that of a group workshop, this time making emphasis on defining concrete possibilities for action to improve the way of life at Javeriana and in Colombian society. A group workshop should foster debate on the concerns and issues identified, and create a set of shared concerns related to actions. Also within a group workshop we expected to discuss the different *boundaries* that would arise in relation to what to do and who to include in any action bringing improvement to Javeriana and the way of living it was promoting. At the end of each workshop we hoped to come up with an agenda of initiatives or actions that should be considered by participants and senior management of Javeriana in their plans to improve the way of life.

By mid-June 1999, we set up a preliminary agenda of two workshops per week, for the period of six weeks. Those twelve workshops would be able to provide enough places for those willing to participate. A number of eight people were expected to take part in each workshop. For us the previous acceptance declared by people during the stage of distinction was an essential condition for participation, as we considered that by having said 'yes', there was already a degree of co-emotioning with those willing to take part.

The above schedule of the exercises-of-design workshops was modified over time. This was a response o the lack of attendance of participants. Although we had provided a set of opportunities for participation, people seemed to be reluctant to dedicate two hours of their time to engage in defining new initiatives for action. Out of the twelve workshops planned, only four were carried out. The average attendance for these was five people (between three and seven in each workshop). People seemed to be 'too busy' to be able to spare time and to engage in discussions out of their normal activities. This situation will be detailed later in this chapter.

9.3.3 Format of the design exercise workshops

Each workshop was allocated two hours. The exercise started with a general presentation of the 'enriched' picture, which contained all the concerns, issues, ideas and actions identified as contributing to the improvement of the way of life at Javeriana and in the Colombian society. We explained our own classification of these elements in boxes. To avoid imposing our own view on how these elements should be seen (in boxes), we told the participants that all the elements in the enriched picture should be considered equally important, as they were coming from people engaged in different domains of action, equally legitimate (Maturana, 1988). People were invited to comment on any of the elements of the 'enriched' picture, and if anyone had any question we could try to provide an answer based on our experience as having being interacted with those who had produced the elements of the 'enriched' picture.

Having presented the different elements, we invited people to select some of them (not necessarily from the same 'box' or area) according to their perception of the feasibility of doing something about them in the short term. We suggested this to the participants due to the short span of time we had in each workshop and the need to respect their engagement in other domains of interaction. For those issues found difficult to discuss during the workshop, we suggested leaving them either for a different instance of interaction (perhaps a meeting with senior members of the university) or for a latter workshop, or for a special meeting in which we could address that issue specifically. We also asked people to suggest other issues that they found not included by us in the 'enriched' picture. We were conscious of the need to question our own boundaries or our own concerns, which could be self-produced in our discourse when interacting with others.

After selection of issues and any other fundamental elements were defined, we proposed to the group to define a theme of concern, embracing the elements selected. They could choose to work in any of the themes identified, and if anyone else within the group was interested in the same theme, they could work together. Diego and I could join any of the groups that were formed. Again, by doing this, we considered that there could be new engagements of interaction between people, who were mutually concerned about a specific issue, so people could start co-emotioning with others in conversations (Maturana, 1988). We ourselves as participants also

wanted to interact in conversations with others and contribute to the definition of any initiative if possible.

9.3.3.1 Definition of relevant systems

To address the above themes identified, we proposed to define a *relevant system in* which human activity would address concerns, actions or issues contained within the theme or area. Here we also made a change in the use of methods in a methodology (Midgley, 1997a). Instead of following the logic proposed in SSM of defining relevant systems from rich pictures (Checkland, 1981; Checkland and Holwell, 1998), we were proposing defining them from the elements contained in the 'enriched' pictures described above. We thought this was more suitable to include the different actions that had been suggested before; the definition of relevant systems should be based on those elements, which were considered important to address.

We explained to participants that a relevant system is a set of elements from a situation (seen as a system) which address the current situation from particular worldview(s) that is (are) considered as relevant to explore (Checkland, 1981; Checkland and Scholes, 1990; Checkland and Holwell, 1998). By addressing a concern, specific action or an issue that needed attention, a relevant system could be identified from any of them.

If we noticed that there was the need to guide participants in the definition of relevant systems, we could propose the following definition of relevant systems whose definition stemmed from the elements of the 'enriched picture'. We considered that this could contribute to the engagement of those who were taking part in the workshops (including ourselves). Again, this was a preliminary classification and we were careful not to impose it to participants, but to invite them to reflect on possibilities for definition of systems. The relevant systems were:

- *Inclusion of people in education by promoting identity.* This system should deal with enabling marginalised groups to have access to education. Reflection on this system should include debate on values that need to be promoted in society through education, in such a way that education also responds to the needs of a particular context. The system should also consider opportunities of integrating students into an international context, bearing in mind aspects of education that should be addressed to achieve this purpose. This system involves participants from inside and outside Javeriana, as discussion of inclusion should involve the gathering of different points of view with different concerns.

- *Definition of information initiatives for education.* Activity on this system should be focused on assessing the impact of initiatives (possibly including those that involve information and communications technologies or ICTs as well as those that do not) in the context of education developed by Javeriana. In the case of having ICT-based initiatives, this system should ensure continuously that ICT and Information Systems support educational processes at Javeriana properly and that the use of technology has an impact on society as a whole. Also the system ensures that the use of ICT fits within the conditions of a particular context where it is used. Conditions include infrastructure, level of knowledge about ICT and information systems, and expectations from other organisations outside Javeriana (e.g. businesses and government). Participants from this system include also different actors inside and outside Javeriana, which are concerned with the role of technology in education and its impact on society.

- *Culture.* A more broad-purpose system is a system to promote a change in the culture of people at Javeriana to promote commitment with the creation of a sense of community. This system could enable different actors to create a sense of solidarity towards others in the Colombian society and invites people to gather together and discuss possibilities for action. It also creates a form of consciousness in individuals and invites them to develop fully their potential to contribute to the improvement of Colombian society as a whole.

The naming of a relevant system based on human action was expected also to call the attention of participants to the possibility of them of engaging in interaction with others. A relevant system could then be seen then as a potential domain of action which is lived in the 'inter-action' (action with others) (Maturana, 1988; Maturana and

Varela, 1992). This relevant system(s) was (were) going to set boundaries to guide further inquiry in the phase of design.

9.3.3.2 The employment of boundary questions

Having selected the relevant systems to work with, we proposed to the participants that they reflect on the implications that developing such a relevant system would have in practice. To do that, we employed the questions about systems boundaries developed by Ulrich (1983) in his work on Critical Systems Heuristics (CSH). As was said in chapter seven of this thesis, these questions provide a framework for inquiring on the nature of a 'system' as a social construction on which assumptions made by designers carry out ethical judgements which are referred to the boundaries of a system.

To support the characterisation of relevant systems we employed the questions from CSH in the 'ought' mode. This allowed us to structure debate about what to do to improve the way of life regarding the concems identified in the way of life of individuals. It also helped us in promoting reflection, discussion, negotiation and commitment for action (Midgley, 1997b). By fostering reflection and interaction, we intended to explore the context in which issues about improvement arose.

By using the different questions on systems we could identify different boundaries privileged by people in relation to what they consider is relevant knowledge (issues, people) for a social design (Ulrich, 1983; Midgley, 1992, 1997a and 2000). Among the categories that compose an inquiry into boundaries of a system S there are: who ought to be the client of S (he/she who is served by the system); what ought to be the purpose of S; what measures of success should S have. Who should be the decision-taker of the S (he/she with the power to change the system's measures of improvement)? What components of S as a system should be controlled by the decision-taker of S?. What resources and conditions ought to be part of S's environment (i.e. should not be controlled by the decision taker(s) of S)? Who ought to be involved as *designer* of S? etc (Ulrich, 1983). These categories were presented in the chapter seven of this thesis as a methodological tool to help those involved in a situation to broadening the boundaries of accepted knowledge.

For example, in one of the workshops a relevant system 'S' was identified as a 'system to improve education at the computer science and systems engineering department'. When inquiring about the different questions in the ought mode, areas of possible action or further discussion could be identified. The following is the result of the inquiry:

Who ought to be the *client* (beneficiary) of the system S to be designed or improved? • Students from the department, students from other faculties, society in general.
What ought to be the *purpose* of S; i.e. what goals states ought S be able to achieve so as to serve the client? • Prepare students to deal with changing circumstances of the environment of organisations and society, having a broad knowledge of their career but also a good general background
What ought to be S's *measure of success*? (or improvement?) • Number of people successfully addressing current problems in society with the help of information technology, number of research projects involving students, members of staff, businesses or other organisations in the country.
Who ought to be the *decision taker,* that is, has the power to change S's measure of improvement? • Students and people from the business sector could intervene in decisions • Other groups in society should be heard.
What *components* (resources and constraints) of S ought to be controlled by the decision taker? • The content of programmes could be developed with the help of students or people from businesses. • The schedule could be flexible, allowing students to study at their own pace and giving them access to different types of electronic resources. If students wanted, they could choose a particular topic for research and develop it with the help of staff or people from businesses.
What resources and conditions ought to be part of S's *environment*, i.e. should not be controlled by S's decision taker? • Changing circumstances in the environment of businesses in the country and abroad. • The philosophy of the university contains principles that need to be respected.

Who ought to be involved as *designer* of S? • Members from business associations, graduates from the department, research staff.
What kind of *expertise* ought to flow into the design of S; i.e. who ought to be considered an expert and what should be his role? • ICT related associations should provide knowledge on what kind of graduate is needed in society. • Business men should provide their view on what is needed to know for a graduate too. • Other universities (national and international) should provide knowledge on the best educational practices in computer science and systems engineering.
Who ought to be the *guarantor* of S; i.e. where ought the designer seek the guarantee that his/her design will be implemented and will prove successful, judged by S's measure of success (or improvement)? • The programmes should be recognised at an international level, they should comply with international standards for computer science and systems engineering education. • There has to be involvement and commitment from senior staff at Javeriana like the chancellor, pro-vice chancellors, and important businessmen in the country.
Who ought to belong to the *witnesses* representing the concerns of the citizens that will or might be affected by the design of S? That is to say, who among the affected ought to be involved? • Citizens who need information services from the graduates working in different organisations. • Community organisations need to be involved as raising the concems of marginalised groups in society, for example the elder.
To what degree and in what way ought the 'affected' be given the chance of *emancipation* from the premises and promises of the involved? • Students could have authority to change the curriculum of the programmes if they see possibilities of improving their own education by taking different modules or proposing research projects to be developed with businesses. They could also include material that they consider important to be shared with other students.

Upon what *worldviews* of either the involved or the affected ought S's design be based?

- The use of information technology will benefit different groups in society (disadvantaged, rural communities, high schools, businesses).
- Education is necessary in order to prepare students to help addressing current problems in society.
- It is still possible to solve current problems of inequality and lack of productivity in the country.

These answers were going to be taken into consideration as references if people decided to design a system 'S' whose action could help improving the ways of living of people by developing activity in a particular area of concern like the area presented above. Answers not only included 'common answers' e.g. answers with which the majority of all participants agreed, but also answers which showed the different opinions regarding what participants were concerned with.

In the above example, it became apparent that although a system 'S' should benefit 'society as a whole', for some of the participants this meant that different groups in the Colombian society should be benefited; further inquiry was necessary about which groups should be benefited. For some others, other societies in other countries could also be benefited, hence it was necessary to keep up the level of standards to be recognised internationally. Involvement of businessmen in the design of curricula was considered by some participants as essential. For some others this was unnecessary; focus of action should be attending the needs of the Colombian community in general.

In situations like this, we could then establish a process of challenging the boundaries established by people by asking people about certain elements that were being 'marginalised' in the answers given to them to the above questions. Our aim was to play a critical role in making evident some situations that we considered had ethical implications, and raise awareness about 'others' with which interaction or inclusion could be considered when examining the implications of any action for the wider society. When finding a situation in which we distinguished a conflict between boundaries like the one presented above, we used the following questions to foster further reflection and debate with those involved in defining a relevant system:

1. Why not include this (marginalised) element (people, issue) within the definitions given? Why has not it been included in action in the past?
2. What about this element that seems not to be relevant?
3. What could be the wider implications of including or marginalising these elements for other groups in society in general?
4. How is this element related to this other (included or marginalised)?

The purpose of these questions was to challenge the taken-for-granted assumptions on which current actions or initiatives of improvement had been based. With the first question above, we aimed at challenging the existing assumptions about including different elements in initiatives for action. With the second question we introduced elements which might be marginalised but could be included. With the third question we fostered reflection on the consequences that the privileging of certain boundaries would have for the wider society. This involved not only thinking of those directly involved in a relevant system as clients, decision takers or participants, but those accounted for as affected, for example citizens (Ulrich, 1983, 2000a). With the fourth question, we intended to establish relationships that could inform the design of initiatives as a whole composed of different elements interrelated to others in such a way that we could use different methods to address these elements in the form of research questions (Midgley, 1990 and 1997a).

In the above example, we challenged the answers of people by asking about the possibility of including groups of people like teachers and community organisations as beneficiaries of the system 'S'. Teachers could provide their expertise to contribute to the design of programmes and the provision of contents. They could also benefit from research projects conducted with businesses. Community organisations could use the knowledge from students and collaborate also in research projects. These groups of people were considered in discussion. In the case of teachers, they were 'included' in the design of an ideal system 'S' as it will be seen later in the chapter.

We also expected that discussion on boundaries would lead to define different areas of agreement and disagreement in relation to the boundaries of relevant systems. For disagreement, we considered it as 'an agreement to disagree'. On those areas of disagreement, we proposed to participants that they should be seen as areas in which an interaction based on *co-existence* could be considered, e.g. by respecting the differences and being able to develop or implement different types of action. Also, by keeping a dialogue open and being able to talk about these differences, we expected that this co-existence could be maintained through time. Our aim was to create from those *new* domains of interaction, based on co-existence as a condition to develop collaborative action between people belonging to different domains of action or cognitive paradigms (Maturana, 1988; Maturana and Varela, 1992; Brocklesby, 1997; Midgley, 2000).

The outcomes of this critique on boundaries was going to be used as a reference for the design or definition of any initiative of action that participants were willing to develop. We could then help structuring debate on definition with the support of other systems thinking approaches and methods. Also as a result of discussion we were able to identify emerging concerns that people expressed, so we could move between different phases of the project, as it will be explained in the next section.

9.3.3.3 Moving between phases

As a result of discussions, we were also aware of possible situations in which new concerns about the way of life could emerge. When a new concern was expressed and identified as such by participants or by us (Diego and I), we invited participants to name it and describe it. Then we would try to find any similarity with the concerns and issues already presented in the 'enriched' picture. If the concern was said to be 'new' for participants, then we would include it in the 'enriched' picture, and then we could be critical about this concern as it was described in the previous chapter (Section 8.6.3 of this thesis). Otherwise we would associate it with any of the concerns already identified. In any case, we would ask if it could be addressed by any of the relevant systems we were already working with, or if we needed to name a relevant system to tackle the concern identified via human action.

Again, this situation can be interpreted as an unfolding of the flow of participants through different domains of action, in which individuals become concerned about specific issues or specific 'others' and want to engage in any type of co-ordinated

action to address elements identified (Maturana and Varela, 1987;Maturana 1988). In terms of boundaries, with the inclusion of concerns we were pushing out boundaries established by knowledge defined as relevant. New concerns could lead to broadening the scope of these boundaries in terms of issues or people to be considered as relevant in action (Churchman, 1979; Ulrich, 1983; Midgley, 1992, 1996 and 2000).

This inclusion of concerns could be seen in the methodological framework as 'moving between stages' as new concerns for the way of life of people arise, and they lead to identify potential new boundaries of what have been accepted as concerns or issues, and relevant systems for action. The new elements included as pertinent would then enrich knowledge to be taken into account for design or re-design of any initiative.

New concerns could be addressed in the design exercises or in any other instance of participation. For example, from the discussions on the system 'S' above, it became apparent that one issue of concern was the involvement of students in the decisions taken by the computer science and systems engineering department. This issue was raised to the director of the department who shortly after invited students to take part in a series of meetings with staff members to discuss possibilities of improving the quality of research in the department. For us this meant a way of including people and their concerns in existing domains of interaction by allowing individuals to be engaged in the conversations that constituted these domains (Maturana, 1988).

What follows in the next sections is an account of our choice of methods to guide the intervention in order to address concerns identified in action via the elaboration of plans or initiatives in the design exercise workshops. This result of this choice can be seen as a 'synthesis' of methods to address specific concerns and issues which emerged as the intervention at Javeriana unfolded and research questions were identified (Midgley, 1990, 1997a and 2000).

9.3.3.4 Approaches used to define systems

With the answers provided by the process of employing boundary questions, we proceeded to use systems thinking methods to derive initiatives and action plans. We decided to have two approaches for defining systems: one in which systems were defined through conceptual modelling (Checkland, 1981) and the other in which systems were described in terms of their ideal properties (Ackoff, 1981). Both were going to be used after elaborating root definitions of these systems (Checkland, 1981).

As said in chapter 4 of this thesis, a conceptual model is a set of human activities that are interrelated in order to accomplish the purpose stated for a system in a root definition (Checkland, 1981). These activities are named in such a logical order that their performance achieves the purpose stated. Conceptual models are *ideal*; this means that the activities that compose them are not — in principle — already developed in practice. In this approach, discussion about what activities are needed, what connections between activities should be made and to what degree of detail activities need to be developed[106] is made.

The usefulness of making a conceptual model was for us to be able to draw activities that in principle could be compared with what was done in practice. This could be done by fostering reflection on how to change the existing situation towards an ideal situation derived from the activities proposed in a conceptual model (Checkland, 1981). Hence, we proposed the first way as addressing issues from which practical action there could be derived in the short or long term, so participants could reflect on what could be done to address existing concerns via practical plans with short-term or long-term application.

Instead of using conceptual models participants could decide to define instead an 'ideal system of activities' in terms of an autonomous system capable of adapting and surviving in an environment, exhibiting certain properties that anyone being served by the system could distinguish. Such a system should not only be designed to address the purpose stated in a root definition, but also to maintain itself and contribute to the improvement of its own environment (Ackoff, 1981).

By defining ideal systems in terms of their properties, we expected to acquire with participants knowledge on the different issues that needed to be addressed in design in order for such a system to be able to develop within its environment of action. This environment included an internal environment within Javeriana (staff, students, departments and dependencies), as well as an external environment (organisations, and community). For both types of environment, we wanted to reflect on the *implications* that could exist for Javeriana as a whole in a particular moment of time (present) in developing what was stated by the properties of an ideal system. Such a design could bring proposals for change at different levels. The design could contain ideas that participants had in relation to how any type of *information and/or communications technology* could bring improvement for the way of life at Javeriana and in Colombian society.

In using both approaches, we expected to derive initiatives and action plans which, could be presented later to the senior management at Javeriana. Although this constraint was already built in to achieve a better degree of participation of people, we considered it important to deliver some concrete actions as part of the project. We consider this as a way of respecting the hierarchy of Javeriana, as they had accepted our project, helped us to start it and expected some results from it. It was also important for a process like ICTP to deliver concrete plans as initiatives for action (García, 1993).

By proposing two different approaches for the definition of systems we were also concerned with the availability of time in each workshop to derive initiatives and action plans as well as our concern with the acceptance by participants of each approach. For us, the first approach offered more possibilities of discussion and understanding between participants about the nature of initiatives or action plans to be defined, but demanded more time and insight from participants. The second approach was simpler, quicker and it enabled a faster definition of initiatives or action plans, although it did not promote much more debate or reflection.

[106] It might be the case that one activity needs to be decomposed to various sub-activities as it is complex to define. These sub-activities are also modelled conceptually (Checkland, 1981).

9.3.3.5 Selection of relevant systems

To move on in relation to the identification of relevant systems identified and discussion about them (section 9.3.3.2 above), we asked participants to select one or two from the list of relevant systems which they wanted to develop in more detail in relation to the human activities that they should embrace to accomplish the purpose desired. The selection of relevant systems was done for various reasons. First, the availability of time for the group workshops did not allow to detail all the themes and areas in terms of relevant systems. Second, by working in defining the detailed activities in one system we hoped to discuss also some of the activities that were supposed to be contained in (an) other system(s), in such a way that discussion could throw light on the definition on other systems and their activities. This can be considered an approach in which different research questions in a situation are interrelated as a whole in relation to what the conditions of the context of a situation are (Midgley, 1997a and 2000).

Third, we wanted to let people decide to work in what they were concerned at that specific moment in time. People might had been addressing a specific problem that they wanted to tackle at that moment as a result of their participation in different domains of action (research, teaching, management, etc.) as well as of their emotioning (Maturana, 1988).

In each workshop, due to time constraints, we expected to select one or two relevant systems and from them develop a series of implications for practical action guided towards improvement in the way of life of Javeriana. After selection took place, and having chosen with participants the approach (from root definitions or by designing ideal systems), we proceeded to elaborate root definitions of the systems identified as relevant.

9.3.3.6 Elaboration of root definitions

After selecting relevant systems we then proposed to participants to gather again in groups and elaborate a root definition of each system, a short description in which one could see what the system does to accomplish the purpose contained within the name (Checkland, 1981). As was said in chapter seven of this thesis, a root definition expresses the core purpose of a purposeful activity system (Checkland, 1981). The purpose of elaborating a root definition (or a set of definitions) was also to establish some parameters for a relevant system, and to 'harmonise' some of the understandings about it.

To do the above, we used the mnemonic of CATWOE in order to elaborate root definitions of the system (Checkland, 1981). As said in chapter seven of this thesis, a root definition is a statement that expresses what a system does to accomplish a specific purpose. The components of the root definition expressed in the mnemonic refer to the **C**ustomers (those who might be harmed, as well as beneficiaries). **A**ctors (those involved in making the system work), **T**ransformation process (identification of inputs that an activity will transform into outputs e.g. people with lack of solidarity to others transformed into committed people with a sense of solidarity); **W**eltanschauung (the World View or set of concerns, values that make a transformation meaningful); **O**wners (those who can stop the transformation from taking place at any time) and **E**nvironmental constraints (things that have to be taken as given, those aspects which a system cannot control).

We used answers to the boundary questions as a reference to guide the elaboration of the root definitions from relevant systems (see section 9.3.3.2). For each of the relevant systems chosen, we expected to identify no more than two or three root definitions in a group workshop. This was due again to constraints of time in the project and also to the possibility of developing in detail few of the root definitions in detail later on in the workshop. To take part in the elaboration of a root definition, participants were free to join a particular group in which a root definition of their concern was going to be defined. This again obeyed our desire of establishing a set of domains of interaction in which people took part as a result of living a concern with others (Maturana, 1988; Córdoba, 1998).

By exploring the potential elements of definitions of each system (CATWOE), participants entered into the debate and were able to express their concerns about

what could be done ideally to improve the existing situation. In case we were going to find different views on what the root definition of a relevant system would be, we proposed to have different root definitions, regarding the possible existence of different *boundaries* in relation to what a relevant system should be. Again we wanted to play a critical role by fostering reflection about those marginalised elements that were being distinguished in debate, but also we considered that there should be respect for different viewpoints accounting for different 'concerns' from people coming from different domains of interaction.

In one of the design exercise workshops, participants developed a definition of an *culture* system for Javeriana:

> a system within Javeriana which promotes in all the faculties reflection on how to contribute to creating and maintaining awareness of and sensitivity to on the different concerns that surround the lives of teachers, students and other members, in such a way that this culture sets an example for the rest of the Colombian community.

***C**ustomers*: Members of the Colombian community, including members of Javeriana.
***A**ctors:* Members of Javeriana interacting with each other.
***T**ransformation* process: Develops awareness and sensitivity in any member concerned.
***W**eltanschauung*: There is concern for people at Javeriana, its members are human beings. Javeriana can set an example for people in Colombia.
***O**wners*: Javeriana University, any member of the institution.
***E**nvironment:* We need to promote such awareness within the philosophy and principles at Javeriana, and within the possibilities of interaction that we could have at the institution.

With the above system, it was expected that those who graduated from Javeriana could also reflect this commitment in the different instances in which they were going to live their lives (family, industry, and international context). To start 'operating' this system, i.e. putting awareness and sensitivity into practice, it was considered that the best way to do it was to set clear examples. Participants committed themselves to be agents of reflection in their jobs. They were willing to discuss the need to reflect on their own current concerns and problems and to establish some meetings in order to give people the chance to do this.

After elaborating root definitions, we proposed participants to choose one approach to derive systems definitions.

9.3.3.6 Definition of ideal systems from conceptual models

Having identified root definitions (no more than three), we gathered all participants in one group. Then we invited them to detail the activities that ideally would account for a root definition to be carried on by a conceptual model. We defined a conceptual model as a set of activities that would accomplish the purpose stated in a root definition, and hence to bring improvement to the way of life at Javeriana (Documento_3_Javeriana, 1999).

In doing the conceptual models, we suggested to participants that the set of activities defined should have a degree of detail that would make the resulting model understandable by others, as well as coherent in action towards accomplishing the purpose stated in a root definition. In a case where we might need more detail (for example where one activity needs some other activities to be accomplished), decomposition of activities can be done again in conceptual models of sub-activities (Checkland, 1981). Conceptual models could be elaborated graphically, to allow participants to define what resources are needed for an activity to be done, and to define also the outcomes of performing an activity (Checkland, 1981).

These models were detailed in relation to the activities they should contain to accomplish the purpose of the root definition to which they were referring. In this way we were defining systems as sets of activities required to address concerns identified as relevant at Javeriana.

9.3.3.7.Defining ideal Systems in terms of systems with properties

Using this approach, we invited participants to think of the properties that could make a relevant system accomplish the purpose stated in its root definition. This purpose should be accomplished within a specific environment for the system. To do that, we used the properties laid out by Ackoff (1981) regarding the idealised design of systems:

- To be technologically feasible. The facilities provided by a system could be accomplished with existing technology or its advances. This could include existing Information and Communication Technologies (ICTs).

- To be operationally viable. The operation of a system should guarantee its existence within a particular environment. This also implied designing mechanisms to guarantee proper maintenance and upgrading of facilities offered by a system, with appropriate resources.

- To be adaptable. A system should be able to cope with changing circumstances within its particular environment of action. This could be achieved also by designing some instances of monitoring and reflection, which could provide a system with enough mobility capabilities of action.

We also added an 'extra' property that we considered essential to achieve the integration between initiatives for action (including any use of technology) and the way of life of individuals. We encouraged participants to think of an ideal system as a *promoter of values*. This idea came from the connection between actions and values, distinguished in the previous phase of distinction, that any plan should have, according to the concerns exhibited by people at Javeriana. We suggested this property of a system is essential, in order to guarantee that in education (at least at Javeriana) values desired to be promoted in society could be distinguished and 'lived'.

For each system, we summed up the properties mentioned in a flip chart. We encouraged participants to think of the relationships between these properties and of the issues that they raised in order to add some more properties seen as necessary to ensure the autonomy of such a system in relation to its environment.

In relation to the system 'S' defined above (a system to improve the education at the computer science and engineering systems department, described in section 9.3.3.2), two of the main concerns expressed by participants (mostly students) was the quality of education received, as well as the impact that they were going to have on society. An ideal system 'S' exhibited as a property a continuous updating of knowledge about trends in technology products and work standards needed by the industry. With this property, students seemed to encourage in staff members and in

themselves a more proactive attitude about educational processes and involve future employers in the process of gaining knowledge, as well as assessing the quality of education. Other properties defined for 'S' were:

- Offers flexibility of time tables for courses, so students can take a module at various times during the week.
- Allows students to do their registration or take courses on-line via the Internet.
- Maintains a database of research projects developed or to be developed with businesses and other organisations.
- Enables students to create their own research project.
- Keeps an up to date list of job vacancies or research projects in information technology for students and other members of staff
- Monitors the process of learning of students and teachers

The resultant design had a technology component into it, due to students' knowledge of the possibilities of use of information technology. A picture of this idealised system S with its properties is presented in the following figure:

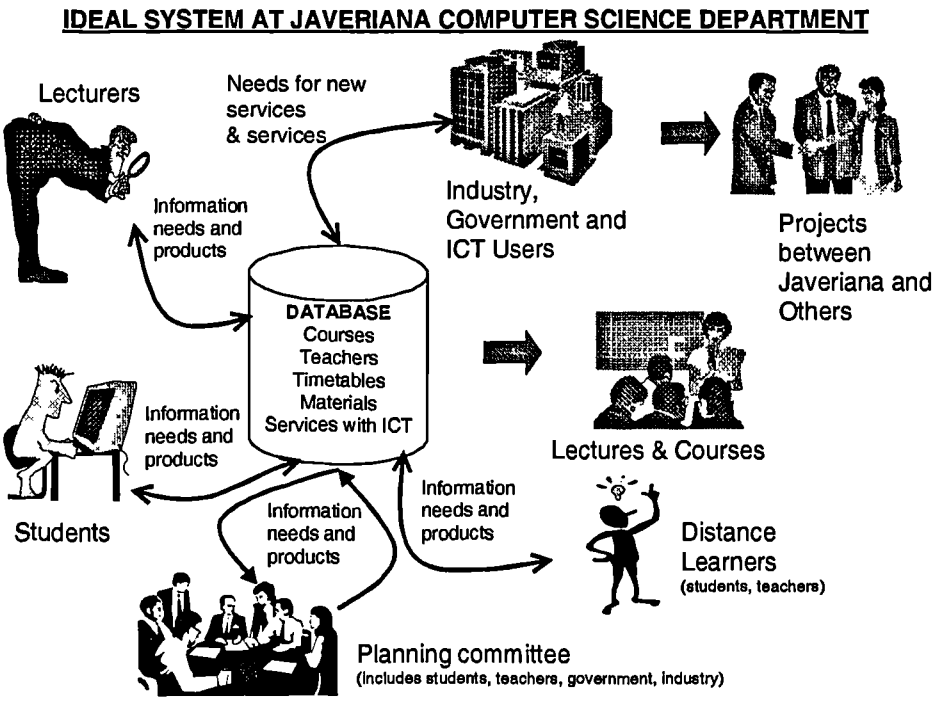

Figure 9.2. Ideal System at Javeriana's computer science and systems engineering department

In the figure, it can be seen that there is a continuous interaction between different groups that take part in the process of education at Javeriana (lecturers, students, businesses, government, and ICT users). These actors might be inside or outside Javeriana. In this ideal education system S, there is a continuous process of learning that takes place for all of these actors. Information for learning is continuously updated. There is a monitoring process, which oversees the learning of the different actors. In this process of education, Individuals have the opportunity to develop their own process of learning by choosing different subjects, adjusting the facilities to their convenience (time tables, lecturers, information resources, length). Businesses also get the benefit of interacting with Javeriana through research projects, which give benefits to both parties.

9.3.3.8 Definition of agendas for action and initiatives

After the process of defining an ideal system was finished (using any of the approaches presented above), we invited participants to reflect on the definitions of activities and compare them with the current situation at Javeriana. By doing this comparison between what they (we) had defined as a set of activities to improve the way of life with and what they (we) or others were doing currently at Javeriana, we expected to raise awareness on the need to tackle certain issues in *action*.

The comparison was done in two ways, depending on the path used to define ideal systems. First, if the definition of an ideal system had been made by defining a conceptual model, then the activities derived from the latter would be compared with what could be done at present regarding the issues highlighted by the model (Checkland, 1981). That could give participants (and us) the opportunity to identify some areas in which concrete proposals for action could be defined as a way of 'improving' towards an ideal system. In this respect we decided not to follow strictly or in detail the steps from Checkland's Soft Systems Methodology (SSM) in relation to its latter stages (comparison between the ideal and actual systems, definition of desirable and feasible changes, implementation of changes) (Checkland, 1981). Again, we considered that time was limited. If some of the proposed actions were needing further discussion, we would propose the creation of an 'initiative', as a set

of actions (including definitions), whose feasibility and desirability should be discussed by those wanting to get involved in the initiative[107].

Second, if the definition of an ideal system had been produced in terms of its properties, we would use those properties to identify some areas that needed attention. We would then propose to participants that they work in certain areas identified as relevant and we would ask them to suggest actions that they saw as necessary to develop improvement in the areas identified.

From the comparison and discussion of potential actions, we could produce an agenda for action together with participants and we would discuss with them a plan for implementation by defining the following elements for the actions contained: name of the action, purpose, responsible for its achievement, and time framework for the action to be implemented.

About the system 'S' presented through this chapter, the idealised design provided a fresh look of different possibilities that could be discussed in the plans of the computer science department. With this design, participants proposed action to be taken in the following areas:

- Registration: Explore possibilities to give flexibility to students to choose timetables and courses. This flexibility should also contemplate the opportunity of using the Internet for access to information.

- Quality: Discuss mechanisms to ensure better quality of teaching and guarantee that teachers comply with the stated standards.

[107] For example, the establishment of a committee to evaluate the impact of technology within Javeriana was considered as an action that did not demand a complex degree of interaction from participants in order for it to be established. Instead, the development at Javeriana of a culture of promotion of values like solidarity and an attitude of continuous learning was considered a complex matter. The first was included as an action to be discussed in a meeting with senior staff. The latter was defined as an initiative whose definition, scope, participants, time frame or resources needed further discussion. The difference between agendas and initiatives also accounted for the difference between already-existing domains of action and new domains of action. An initiative would demand the establishment of a 'new' set of conversations around a concern, which would not have been addressed specifically before at Javeriana. For us this was considered as creating a new domain of action in which individuals were living a specific concern with others (Maturana, 1988). An agenda for action would propose managing issues identified using existing domains of interaction as domains of conversations.

- Planning: Students should take part in the re-design of the curriculum of the computer science program. Participation should include also people from the industry.

- Employment. Explore possibilities of taking part in projects jointly developed with businesses and organisations.

The information of this design was handed in to the computer-science director who considered it as suggestions to be discussed in further departmental meetings; in the computer science department, a redesign of the academic curriculum was being carried out. Also the director manifested her interest in bringing some of the suggestions at the level of the Faculty. This would allow her and the department as a whole to contribute to the process of planning within the Faculty.

Other practical outcomes of these exercises can be found in the Appendix 2 of this thesis. Also as they were emerging, the agendas for action and initiatives were informing our second front of action, which we called 'critical engagement'. In it we engaged critically in a set of already existing domains of action. This will be described now.

9.4 Critical Engagement at Javeriana

As was said before in this chapter, our second front of action for the phase of design was for us as researchers to be able to take part in a series of projects or initiatives which, were already being developed at Javeriana. Some of these projects were related to the use of technology in education. Some others were related to other issues. We accepted the invitation to take part in these projects, which were:

1. The implementation of new information-based library services using the facilities provided by Internet access.
2. The design and implementation of a digital library system, a document database which could allow people the continuous exchange and updating of information relevant for their areas of interest.
3. The design of a new education program dealing with the use of information technology in architectural design.
4. The re-design of curriculum for the computer science engineering program.

In total, we participated in four meetings, one meeting per project. Other activities that followed from these meetings are included as exercises for design or interviews for the stage of distinction in the project. This obeys the following reason. As we took part in the meetings (for example project number 1 above about library services), participants asked us to help them define the scope of the project. We proposed first to conduct an interview with the leader to identify current concerns surrounding the project (see section 8.6.3 of this thesis). Then we would conduct a 'design exercise' in order to address concerns and issues identified as well as those emerging within the group during the workshop.

The making of this additional interview and design exercise can be seen as a new 'rolling out' of the boundaries of participation in our project (Midgley and Milne, 1995) as well as an iteration between the different stages of our methodological framework. About the former, new concerns can be identified (distinction) and are addressed through the design of agendas for action or initiatives or projects (improvement).
What is presented in the next section is a description of the strategy followed in the critical engagement with others.

9.4.1 Strategy followed

In our participation in the meetings of the projects described above, we adopted a strategy of *listening, questioning and contributing*. We listened to the current developments and concerns of the initiatives. Our focus in this listening was to identify those elements that were being emphasised in the discourse, and some others being marginalised. We encouraged those to whom we talked and ourselves to 'see' other issues that could be hidden in the discourse or not addressed at all. The type of questions we asked or discussed during the meetings were:

- Why is this concern or issue so important?
- Have you considered other issues or alternatives of action?
- What about these concerns and groups of people that do not seem to be represented (i.e. are marginalised) in your plans?. Have you considered them? If not, why not?
- Who is going to assume responsibility for and be affected by consequences of changes and initiatives proposed?

With the above questions, our aim was to identify different concerns and the boundaries that they were privileging with possible elements marginalised from the mainstream of actions. We wanted to be critical using the notion of boundaries. We considered that as domains of actions, these projects could be influenced by our own concerns coming from our participation in other domains, e.g. by our participation in the domain of conversations that constituted a project as a domain of action (Maturana, 1988). We were also bringing secondary boundaries into discussion, which could challenge the prevalence of the already adopted boundaries (Midgley et al, 1998).

A summary of the reflections in relation to what we generated during the phase of design (improvement) is presented now. This summary also distinguishes a finding in relation to the rediscovery of ethical concerns and the distinctions of myself as an ethical subject.

9.5 Reflections from the Phase of Design

This section summarises the reflections obtained after the activities for the phase of design (improvement) were carried out in the two fronts of actions defined by our strategy. A more concrete description of what can be considered practical outcomes of the project is given in the Appendix 2. The reflections made here refer to those that have emerged from the use of the methodological framework and the appearance of ethical concerns, including the distinction of a self (myself) as an ethical subject.

The mixing of methods, in combination with boundary critique, proved useful to address issues that needed further clarification and exploration inside Javeriana. Among these issues, there were two that deserve particular attention. First, the issue of co-ordination between initiatives and plans at Javeriana needed attention. By challenging the purposes of initiatives like the implementation of a digital library and the design and implementation of new library services, we could promote discussion and debate around the possibility of these initiatives being more co-ordinated. They both had similar purposes and at the time of critical engagement were experiencing difficulties of acceptance among the users. They could gain from the exchange of information and develop a more integrated set of services for Javeriana as a whole.

Second, the issue of evaluating the social impact of initiatives at Javeriana was raised. By social we meant that there should be continuous awareness and reflection on the consequences that actions of Javeriana were going to have for different groups of individuals inside and outside the institution. The use of boundary critique allowed a way of evaluating the impact of initiatives in terms of inclusion, exclusion and marginalisations to be established. Questions like 'who else should be included' and 'what else should be considered' for any initiative became important to foster reflection in existing and new initiatives.

Also, we used the above way of questioning to foster a more inclusive degree of participation of people at Javeriana in initiatives. At the end of this phase, we (Diego and I) considered that people could be more involved in initiatives and that discussions about the meaning of improvement could provide insight about how Javeriana intended to benefit Colombian society in a better way.

The use of the methodological framework allowed a reflective process, which gave rise to a set of proposals for change towards improvement of the way of life at Javeriana and of Colombian society. But how could these be implemented? At the end of the phase of design, we still had our own doubts on how influential the suggestions made were going to be for those in charge of taking decisions at Javeriana.

Some of the questions raised by us at this point before finishing the project were related to how decision takers were going to take on board suggestions made:

- Would people accept suggestions without any discussion?
- What difficulties were going to be encountered in trying to make suggestions for change acceptable and implemented?
- On which grounds could we argue against any objection? What difficulties were we going to have?

These questions also emerged from our concern with the low degree of participation in the exercises of design and with the reluctance of people to define initiatives of action coming from the process of debate. This sounded contradictory to us as in the previous phase (distinction) people had made many suggestions. When it came to the point of defining concrete actions and responsibilities with their implementation,

participants in exercises of design seemed reluctant to go ahead or had different ideas. This can be seen in the following examples:

- In one of the design exercises we were criticised by participants who argued that our work should not aim to promote participation but provide proposals for concrete action. Participants expressed their confusion about the 'enriched' pictures. They wanted us to show them our 'expertise' by suggesting courses of action to improve the existing situation at Javeriana. They considered that it was more productive to discuss possibilities of action already defined than to define them. It seemed to me not right to assume a role of providing knowledge to others whose responsibility was to improve their own way of life by putting their concerns into practical action.

- In another design exercise, to the possibility of reviewing the institutional plans and goals in order to adapt them to the emerging issues of concern, one of the members of Javeriana emphasised that this could lead to *a lack of coherence and de-organisation of the institutional plan.* He said:

> none of use should change the goals established before as they were consciously defined by a committed group of people...Any attempt to change these would in a certain way contradict the philosophy and values of the institution...We *should* instead commit ourselves to the existing plans (Diario, 1999, my translation, my italics).

  The above seemed to mean that there was an element beyond the identification of boundaries or concerns that needed to be addressed if change was going to take place. This element had to do with an existing plan as a way of improving life at Javeriana and Colombian society in general that was considered by some as the 'right' plan to put into practice.

- The two main issues discussed above (co-ordination and social evaluation of the impact of initiatives) as well as others that we considered important about the phase of design were presented in a final report to the senior management of research at Javeriana (Documento_4_Javeriana, 1999)[108]. During the discussion

[108] This report contained a brief introduction describing the aims of the project, methodology used; activities conducted, main findings (including the four proposals) and conclusions and recommendations for further research and action (Documento_4_Javeriana, 1999).

of the report, I was told by one of the managers that the evaluation of the social impact was not an issue of concern in planning. For her, at Javeriana people knew 'exactly' who was going to be benefited by the actions developed as well as what needed to be done. Also at that meeting, I was invited to continue supporting the project by following up on the proposals for change contained in the document[109]. To both issues, I considered that the course of actions proposed was not 'right' to accept or follow according to my ethical principles and experience.

In these situations it appeared that there were different engagements of people in domains of action, which they seemed to consider as 'ethical' or 'ethically appropriate'. These engagements, by providing a claim for privileging certain elements in action (including issues, people and initiatives), created a diversity of alternatives any choice among which was difficult to justify or achieve.

In the above examples, I was experiencing again conflict regarding ethical concerns; a situation that I called 'ethical blindness' before. Again, it was manifested in the impossibility of individuals of engaging in new domains of interactions or including others in existing domains. This can be as a consequence of their autopoiesis. Individuals are seduced to keep certain concerns living according to their preferences and emotions as disposition for actions (Maturana, 1988). These concerns are lived with certain 'others'. Despite us trying to convince them to engage in new interactions, there seemed to be something that restricted them to certain domains on the grounds that that was where their concerns lay. How to explain these concerns and these engagements from the perspective of ethics? How to account also for my own ethical preferences?

The above examples might have been explained within our methodological framework in terms of recognising different boundaries (my own and other people's) in relation to what should be done. Participants and I had different ways of doing 'good'. They wanted to stick to their existing commitments in plans and I wanted them to include issues of reflection and ethics in their actions. Boundaries were being ritualised in the discourses that called the attention to institutional plans. It became difficult to change any of the boundaries by establishing a process of

[109] It is quite striking that this invitation was extended to me, given our explicit argument against the use of expert decision making in our final report. Perhaps the Autopoietic rationality of the senior research manager had prevented her from 'hearing' the message I was trying to convey.

challenging assumptions taken for granted in the privileging of any of them. This situation points out questions that regard the ethical content of boundaries: what should a researcher do regarding his/her own ethical concerns? How to understand and manage different ethical views? How could ethical conflict be better understood?

From the above, one can say that in the methodological framework used the existence of different boundaries influencing and being influenced by interactions in a situation was accepted. These boundaries are perpetuated in social ritual (Midgley, 1992). But in saying this there seems to be little room for reflecting on the meaning of situations where researchers are raising ethical issues which they consider relevant, and the consequences that this behaviour brings for situations of intervention.

For practitioners, there seems to be the need of being more critical and self-reflective, not only regarding the need to achieve practical outcomes in intervention, but also on the need to understand better how a researcher as a subject is engaged in ethical situations throughout intervention.

To the suggestions of action proposed for improvement and the difficulties of dealing with the above situations (it was not possible to convince others to change) I made a distinction. I saw that *there was a context of interactions in which the use of boundaries had allowed me to identify myself as an ethical subject, with claims which seem to come from my own ethical principles.* This identification had emerged from the impossibility of including 'others' (including myself) in implementation initiatives for improvement when using a critical systems-thinking based framework for intervention in the practice of ICTP.

As during the phase of distinction, I could realise that there was a series of ethical concerns, which were distinguished by myself and emerged from the interaction with others. These concerns had to do with what they (we) considered was good or right to do. It seemed that I needed a further explanation to what was happening, and an explanation that did not seem to be found within the methodological framework designed.

It appears then that the use of a critical-systems-thinking-based framework has brought a challenging notion of improvement for social design based on inclusion. When this notion is put into practice, it resulted derived in situations in which it seems

to be necessary to self-reflect about the ethical consequences of interacting with others as part of the way of life one is living and promoting.

With the above findings and reflections, some conclusions of this chapter are formulated.

9.6 Conclusions

The experience developed at Javeriana University in Bogotá Colombia for the phase of design (improvement) has been presented in this chapter, showing the different activities in which Diego Torres and I took part as researchers. We were engaged with people and their concerns (including our own!), and reflection has been fostered when these concerns are understood as systems boundaries.

The use of boundaries in order to account for concerns, ideas and values of people has proved an interesting process in which some proposals for change have emerged. A combination of systems thinking methods helped us to define such proposals and to involve people from Javeriana. Although no method of ICTP was employed to address the concerns identified, the set of actions addressed most of the concerns of people obtained during the phase of distinction.

In the difficulties of making these proposals fully acceptable and implemented by people at Javeriana, I discovered myself as a subject with a quest that I call ethical, as it is based on ethical concerns with others and myself. I call it a quest as the raising of ethical concerns seems to be continuous and derives in a process of self-questioning about my own ethics. In the project at Javeriana, concern with ethics was identified in both phases of the project (distinction and design). In both phases, difficulties arise when a self is called to interact with others and he/she exhibits a certain ethical concern that influences further interaction with others (acceptance or withdrawal to continue in other interactions). This distinction on difficulties involves not only the researchers but also those who take part in action at Javeriana. People take part in different domains of action in which there are different ethical concerns for 'others' (Maturana, 1988).

From the above it follows that the experience presented has been given the support of a critical systems thinking framework, which combines the theories of autopoiesis

and boundary critique. The use of such a framework, has resulted in questions related to the situations of what to do when there is a difficulty in establishing a way of understanding and managing different ethical concerns that influence interaction. Hence, a richer understanding of the interplay between an 'ethical self' (like myself) and others is needed if the process of ICTP is conceived as a continuous unfolding and managing of concerns for action based on the way of life of individuals.

At this point, it is worth considering that a 'strategic' view of the development of the information society through processes of planning like ICTP needs to situate a practitioner as an ethical subject with particular concerns about improving the way of life of people (including him/herself). Such a subject is in continuous interaction with other selves.

The use of critical systems thinking (CST) ideas has fostered debate, participation and involvement. These ideas should be complemented with a better understanding of the existence of diverse ethical views about improvement in current society and how a self reflects on those during his/her practice. More possibilities to conduct self-reflection in the interaction with others are needed to enrich critique and to deepen into the role of researchers as being ethical subjects.

Hence, the following chapter in the next section will provide a review of CST in relation to the self-reflection of a practitioner about his/her own ethical concerns.

Section Three: Reflection on Power-ethics for Systemic ICTP and Systemic Life Projects.

Introductory section

In the previous chapter the issue of the need to understand the emergence of ethical concerns raised by a practitioner in his/her interactions with others was raised. After my participation in the project, and having applied the ideas of a critical systems thinking based framework in the practice of ICTP, my main concern as a researcher was to understand myself better as an ethical subject. I had found that the ideas from the methodological framework used could not help explaining my situation as an individual raising continuously ethical concerns in his interactions with others. How to manage in systemic intervention the continuous raising of ethical concerns by an individual (including a practitioner?)

I needed to make sense of myself and my ethical concerns, and get some guidance that could allow me to reflect on my own role as a systems practitioner and person engaged in different domains of interactions. I wanted to address questions that were unsolved so far:

- How to understand the continuous raising of ethical concerns by an individual subject like myself?
- How could an individual subject understand the existence of different 'ethics' coming from other individual subjects or groups of subjects?
- How to justify the own decisions even if they could conflict with others?
- How to guide practitioners in the areas of information systems and critical systems thinking when dealing with ethical issues?[110]

In this section of the thesis I present the results of my critical self-reflection process about these questions that complement the definition of a 'strategic' view for planning in the information society, making particular emphasis on the issue of ethics for individual and collective subjects engaged in a process like ICTP. Having reviewed different ideas and discourses about ethics (Plato, 375 B.C; Aristotle, 350 B.C; MacIntyre, 1967, 1985 and 1999; Mackie, 1977; Price, 1989; Taylor, 1989; Irwin, 1995; Slote, 1995), I became aware of the need to understand the raising of ethical concerns by an individual subject as a *process* that is developed in *interaction* with

[110] Here I was recalling the claim made by Walsham (1996) about the little guidance that information systems practitioners have when facing ethical dilemmas.

others. When dealing with ethics, individuals need to be aware of themselves, their concerns and how they interact with others, as well as how what happens in any interaction. In short, it seemed to me that self-reflection on ethics was influencing and at the same time being influenced by the *different types of interactions* with other individuals or groups[111]. For those like me interested in knowing how to deal critically with ethical issues in interaction, it appeared that an account of what to do about ethics in interaction with others bearing in mind the nature of such interactions became an important issue. In interaction, self-reflection about ethics could contribute to make sense of different concerns raised by an individual and allow him/her to deal with different situations. Interactions needed to be better understood and critique needed to be developed in relation to the 'ethics' involved in interactions.

As an important aspect of interaction is the practice, and in my case the practice of systemic intervention, I started my reflection on reviewing how different approaches in CST deal with self-reflection about ethical aspects in the interactions with others. There are different approaches which encouraged practitioners to reflect continuously with others regarding issues emerging through systemic intervention. There are also, of course, discussions of these issues in other disciplinary areas, but given that my research is located in the discourse of systems thinking, I suggest that a focus on CST (where these matters have been dealt with in some detail) is sufficient.

Through this review on different approaches I became aware of the need to provide an account for the different *tensions* and dynamics at occur between individuals in interactions when practitioners raise different ethical issues. How to manage such tensions? In the approaches reviewed there was not enough detail or concern on this, however some of these approaches referred to the work of Michel Foucault to support a better understanding of interactions that are experienced by individuals in systemic intervention.

Following this area which seemed to offer possibilities to explain and deal with different tensions in interaction, in the next chapter I present my review of the work of

[111] One of my doubts emerged from reading accounts on ethics like that of Plato (375 B.C) or MacIntyre (1985 and 1999) was that of the possibility that ethical issues emerge in different types of interactions with others, not necessarily those which could be considered as 'city-states', 'moral milieus' or 'communities of practice' or those in which an individual self bears in mind the existence of certain ends and 'goods' connected to such milieus or communities. Another doubt that I identified in interpretations of Aristotle and Plato's discourses on ethics (MacIntyre, 1985; Price, 1989; Irwin, 1995; Slote, 1995)

Michel Foucault regarding his notions power and ethics. The notion of power had been used in the realm of CST to account for the mutual influence between power and action[112]. However for this realm the relationship between power and ethics could be refined further help practitioners to enrich their self-reflection with others about ethics. This could give people more awareness on the nature and consequences of their interactions, by giving them the opportunity to judge the possibilities of action given by who they are and who they could be as ethical subjects. It could also help practitioners to make sense of their systemic practice and issues of ethical concern emerged through it related to their own lives.

In order to enrich the current discussion on CST (Midgley, 1996 and 2000) and provide a contribution for the practice of systemic intervention and ICTP, in chapter twelve I provide my own understanding of the notion of power-ethics that can enrich critique when practitioners in the realms of critical systems thinking and ICTP are conducting interventions with others. This critique can help practitioners to make sense of their own lives as life-projects that are lived in interaction with others and to be critical about initiatives that aim to be ethical towards improvement of the different ways of life in society. It also complements the methodological framework that I had developed for ICTP by providing those involved in a situation with a new area for critique on the boundaries privileged when including and marginalising people and issues, and giving them (us) the opportunity to reflect on our own ethical concerns, and be critical about them.

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regards the possibility of these imposing a unique ethical discourse over other views on ethics which seemed to me following the path of objectivity without parenthesis (Maturana, 1988).

[112] This will be explained in more detail in this chapter and chapter twelve of this thesis.

Chapter 10: Self-reflection, 'The others' and Ethics in Critical Systems Thinking.

10.1 Introduction

In this chapter I review some of the developments in Critical Systems Thinking (CST) that have highlighted the need to reflect with others on issues that might have ethical implications towards the improvement of a situation. The next section will start by reviewing basic features of approaches in CST.

10.2 On CST

A good number of developments in CST have centred the attention of researchers in two aspects. First, developing frameworks that allow for the use of different systems methodologies according to an understanding of the context of interaction in which an intervention unfolds (e.g. Jackson and Keys, 1984; Flood, 1990; Flood and Jackson, 1991; Flood and Romm, 1996a and 1996b; Jackson, 1999). Such understanding will give researchers the capability of reflecting *about* the interactions that they develop with others. They will not be reviewed in this chapter nor will be in the thesis[113]. There is a good deal of work going on in this area.

Second, in CST practitioners have been provided with frameworks that allow them to *self-reflect* in the interaction with others (Flood, 1990; Gregory, 1992, 1996 and 2000; Flood and Romm, 1995; Vega-Romero, 1999[114]). Practitioners should be critical about their own ethical concerns and the impact that they have for any process of change that they desire to promote. They should also be able to transform themselves in the interaction with others. Self-reflection is seen as a process to be developed with others with whom change or transformation of individuals and the social context in which they interact can be achieved.

In the next section, some approaches that address more directly the possibilities of self-reflection and reflection with others in interaction regarding the main themes of

[113] Two good reviews and critiques of approaches like the systems of systems methodologies (Jackson and Keys, 1984) or Total Systems Intervention (TSI) (Flood and Jackson, 1991; Flood, 1995) can be found in Gregory (1992) and Midgley (1997a). To the other approaches mentioned critique will be developed regarding the possibilities for self-reflection and reflection with others.

CST are presented. These approaches are Liberating Systems Theory (LST) (Flood, 1990), Diversity Management (Flood and Romm, 1995 and 1996) and Critical Appreciation (Gregory 1992, 1996 and 2000).

10.3 Approaches Dealing with Self-reflection and Reflection with Others

In Critical Systems Thinking (CST), the reflection of practitioners has become an issue of discussion. It has been enhanced by critique about aspects of a situation that should not be taken for granted. Interactions in a situation have been considered as dynamic and critique has been proposed over these interactions. In this section I review the issue of self-reflection in some CST approaches. The first of these developments (Liberating Systems Theory or LST) fosters critique of suppressed knowledge and on the importance of locally taken decisions when interacting with people in interventions in a situation. The second approach (Diversity Management) takes on board the premises of the first and promotes a critically informed process of choice in individuals. These will be presented in the next sections.

10.3.1 Liberating systems theory (LST): Liberate and critique

Flood (1990) provides a view of a systems approach that combines the use of systems methodologies and methods with a combination of theories. In his approach, the focus is the production and use of knowledge about a problem situation; this knowledge includes systems concepts. Flood argues that Critical Systems Thinkers must be 'more critical' about what they are dealing with in different contexts. The knowledge being considered as relevant to improve a situation needs to be criticised on the grounds that it has appeared in specific historical and local circumstances.

According to Flood (1990), some assumptions about critical systems thinking must be challenged and the use of methodologies can be enhanced with a critical meta-epistemology, supported by the ideas of Habermas on interests and rational communication and Foucault on 'interpretive analytics' (Foucault, 1977b and 1982a). This will provide systems theory with more strength and diversity.

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[114] The work of Vega-Romero brings the ideas of Michel Foucault on power to account for possibilities of self-reflection and reflection with others. This work will be reviewed in more detail in chapter twelve of this thesis as I consider that I go in a very similar direction to Vega-Romero.

Flood argues that it is possible to combine Habermas's and Foucault's projects on society under the foundation of achieving a 'rationally motivated agreement among participants of a situation' (Flood, 1990). This agreement has a pre-condition and a limit. As a pre-condition, agreement is supported by the liberation of suppressed knowledge. As a limit, agreement is situated within the local conditions of a situation in such a way that the aim of achieving satisfaction of human needs is supported by the comprehensiveness of Habermas's social theory of the interests of the human species. This comprehensiveness however is limited by the impossibility of achieving universally accepted ideas about improvement of such a situation.

According to Habermas (1972), the interests of the human species are of three types:

1. Technical. There is a human desire to master the environment in which humans develop. Technical interests are those related with the control, prediction and management of the environment, for which technology becomes a tool[115].
2. Practical. These interests include our relation to other humans, through communication and language, our social practices. This interest aims at achieving a degree of understanding with others.
3. Emancipatory. These interests emerge when humans need to liberate themselves from barriers in both of the above interests in order to fulfil their needs.

The above seemed to be an account of interests of the human species which has influenced (and has been contested by) further developments in CST presented later in this chapter.

To address the issue of human interests in critical systems thinking, Flood claims that there are four areas in which practitioners should be critical in their interventions, with the purpose of unifying different critical approaches to social phenomena. These areas are:

1. Conceptual anti-reflexivity: Flood argues that the notion of a system has been self-productive, i.e. fulfilling and verifying its own assumptions regardless of the context there it has been used. Systems ideas in society should be used in

social contexts critically. This requires an historical and developmental investigation that attempts to deal with the 'subjectively intended meaning of authors' when using systems notions (Flood, 1990, p. 24).

2. System as an abstract and paradigmatic conception. There are different ideas about a 'system', each with its own paradigm (set of assumptions) about society. Interventions should be opened to these ideas, and the notion of a system should be seen as value-laden in each case.

3. Histories and progressions of systems thinking. This area aims at analysing critically the production and use of knowledge. Here Flood invokes the work of Foucault in genealogy (Foucault, 1976)[116]. Knowledge should be seen as being (re) produced in networks of discourses. These formations are understood as dynamics and shaped by localised power relations that are reflected in social groupings (Flood, 1990, p. 26). Such a situation leads to "subjugation and thus to resistance and relations of power" (Flood, 1990, p. 43). Critique should aim at seeking out subjugation and liberating discourses which have been suppressed as the result of power by "strengthening the resistance" (Flood, 1990, p. 44).

4. Inquiry of systems of 'problem solving'. Knowledge is associated with Habermas' (1972) fundamental human interests (technical, practical and emancipatory). Systems methodologies can be used complementarily not only for 'problem solving', but also under the possibility of integrating different paradigms in the idea of knowledge as produced by these different interests.

Based on the above themes, Flood develops a theory to support a form of critical systemic inquiry whose ultimate aim is to bring emancipation. Emancipation is better understood as a process of knowledge production which enlightens people from "whatever conditions that prevent people from truly realising their potentials as individuals" (Flood, 1990, p. 163). The validity of the theory should be primarily judged in terms of its potential in bringing about practical application and emancipation. A system approach based on such theory is characterised by promoting subjectivity, being explicit about preventing itself from being expert-driven,

[115] The fulfilling of this desire culminates with the appearance of technology in the development of human kind (Freire, 1974).
[116] Foucault's genealogy can be seen as "an explanation of discursive formations and statements, or concepts, articulated through the form of networks that cut across sentences and other discourses" (Flood, 1990, p. 26). I give another definition in chapter eleven of this thesis.

by including critical theories about society (like historical materialism) and by being explicitly ideologically emancipatory. Such characteristics make it tenable in both systemic and sociological terms (Flood, 1990).

Flood (1990) bases his claim on emancipation by reference to the ideas of Habermas about the interests of the human species. For Flood, critique should follow the emancipatory type of interest proposed by Habermas of eliminating barriers that prevent people from fulfilling their human needs. In Flood's view, these barriers could be contributing to the creation of 'false' forms of knowledge which drive inquiry and action in individuals; these forms could also lead to coercive situations and might be suppressing other forms of knowledge. Because of this, critique should then foster self-reflection and reflection with others around the production of knowledge in society, including assumptions about how society should work. Again, the aim of this is to open chances to individuals for them to satisfy their personal needs and to liberate people from dominance by other people (Flood, 1990).

Critique also entails an attitude of being critical in practitioners, which means remaining self-reflective but open with respect to different points of view and different types of rationality. This means recognising the strengths and limitations of approaches and types of rationality that practitioners use to deal with situations. Flood (1990) also encourages practitioners to think critically of the ethical implications of knowledge produced by reflecting on its normative content, but to avoid resorting to a search for ethically universal premises. For Flood, continuous ethical challenge will lead to emancipation. He will support continuous reflection on the use of practical and collective reason that was first proposed by Ulrich (1983) in his work on Critical Systems Heuristics (CSH). As was mentioned in chapter seven of this thesis, the employment of this way of reasoning intends to take into account the views and interests of those affected by decisions in social design. It also acknowledges the impossibility of achieving an all inclusiveness of points of view of all people affected and reflection on all the assumptions that influence such decisions.

From the above, it follows that the aim of Flood is to integrate different systems concepts and sociological theories under the purpose of achieving human emancipation by tackling situations using Critical Systems Thinking (CST). Under the need of 'liberating' suppressed knowledge, Flood expects to foster debate on possibilities for action, which could be addressed via the use of systems

methodologies and consideration of the conditions of power in the local context in which an intervention is developed.

However, there are difficulties in the attempt of Flood of integrating critique as presented by Habermas and Foucault. For some authors (Fairtlough, 1991 and Midgley, 1997a), Foucault and Habermas take different directions regarding their notion of knowledge that might not be reconciled. Fairtlough (1991) sees that there is a contradiction:

> Habermas believes in progress (in the production of knowledge) with methods of inquiry, sometimes advocating a change in paradigm...Foucault, on the other hand, is afraid of precision in his own knowledge and is reluctant to state his conclusions because of his equation of claims to knowledge with deposited power (Fairtlough, 1991, p. 267, my parenthesis).

What Fairtlough also means is that by including Michel Foucault's notion of power, Flood also introduces some doubts about how knowledge should be conceived ultimately. First, Flood accounts for power as a 'suppressing' force. His idea of liberating discourses seems to remove distortions for individuals caused by the operation of power towards the satisfaction of their needs. Although he accepts the idea that "truth is dependent on power" (Flood, 1990), and that there could be power-related barriers towards a better communication between individuals, Flood still believes in achieving a form of rational argumentation through critique on these barriers in which "the natural flow of discourse and order can be re-established" (Flood, 1990, p. 182). This would mean leaving out the influence of power in the production of truth once the power-suppressing aspects have been identified. So is knowledge 'free of power'? With the above, Flood seems to give an ambiguous answer to this question.

Secondly, and in relation to the above ambiguity, Michel Foucault's notion of power, although inevitably influencing knowledge, is more comprehensive than simply acting as a suppressing force for knowledge as Flood has conceived it. Following Foucault (1977a), one might argue that this 'suppressed' knowledge is enmeshed in a form of power that is part of the web of power relations between individuals and groups in any society (Foucault, 1977a). Moreover, and as Midgley (1997a) has said, power can be used in a more positive way, by considering the possibilities of action that it

enables in a web of relations that conform a particular context of interaction for individuals.

A more detailed account of power derived from the work of Foucault will be seen in the next chapter in order to justify the comprehensiveness and inevitability of power argued above. For now it suffices to say that Flood's account has centred self-reflection and reflection with others in the issue of emancipation, but that an 'emancipation' from the issue of power has not been achieved. In this regard, the account of Flood needs to be more comprehensive regarding the use of Michel Foucault's concept of power.

An interesting attempt to be more 'strategic' and comprehensive in fostering self-reflection with others to support a critical practice regarding the use of power has been raised by Flood and Romm (1996a and 1996b). This will be explained in the next section.

10.3.2 Diversity management: Triple loop learning

Flood and Romm (1996a and 1996b) have followed the line of argument in CST that deals with the situation of complementarism in the use of systems methodologies and approaches[117]. They propose an approach to deal critically with theoretical and methodological issues that arise in interventions. It is called diversity management. It aims at respecting the diversity of contexts of intervention and of systems methodologies, and fostering critique towards choices that are made throughout interventions. These choices should be enhanced in order to deal with the great complexity that is lived in organisational and societal affairs (Flood and Romm, 1996a).

For Flood and Romm, choices in intervention should be locally decidable, temporally ephemeral and widely informed (Flood and Romm, 1996a). The latter aspect means that choices should be made carefully considering wider ongoing theoretical debates and matters of contemporary concern. On how to conduct a critically reflective process to inform choices, Flood and Romm (1996a and 1996b) propose to work in three different cycles of learning from a situation, to address the following three questions:

1. Are we doing things right?
2. Are we doing the right things?
3. Is rightness buttressed by mightiness and/or mightiness buttressed by rightness?

Flood and Romm argue that the first question refers to issues of design, the second to issues of debate and the third to issues of power. Practitioners should be able to choose which of these issues is 'dominant' over others, and then employ the models or methodology (practical steps that reflect a set of principles) most appropriate to deal with issues identified. This choice should be made on the basis of those elements that are available and meaningful locally for a situation. It would be also possible to use a methodology to tackle issues to which it has not been in principle defined to deal with. This is called the 'oblique use of methods'. On this aspect,

[117] It seems that Flood and Romm (1996a and 1996b) do not make a distinction between systems methodology and method. They employ methodologies for different purposes under the name of 'oblique' use of methods'.

practitioners should state clearly the purpose(s) of using methodologies or approaches regarding conditions encountered in a context of intervention. An oblique use of methods considers that in a context there could be forces that inhibit the raising of different issues. When they consider the terms 'might' and 'right' they seem to account for the existence of power forces and of moral questions in the interventions. What is the moral commitment exhibited behind this?

It seems that the main moral commitment that is exhibited in Flood and Romm's account is a commitment towards emancipation of those who are involved in a situation. Emancipation is understood as coming from Habermas's notion of human interests (Habermas, 1972). Emancipation for Flood and Romm can be defined locally, considering what is feasible to achieve in relation to the existence of power relations. In interventions, Flood and Romm (1996b) argue that practitioners should foster emancipation. They should take responsibility in dealing with issues of corruption or coercion and should employ methodologies that they consider appropriate to deal with these issues. They can make 'oblique' use of methods to address situations that need to raise these issues.

From Flood and Romm's account, it seems that for practitioners, the raising of ethical concerns is mediated by existing methodologies (even with the oblique use of methods) and by certain issues that could be considered ethical in a particular context. There are areas by which practitioners are guided (design, debate, coercion). A degree of 'astuteness' is suggested to practitioners to choose actions that could be developed in a context, bearing in mind the existence of different sources of coercion.

Flood and Romm (1996a) seem to have identified the need to consider the potential constraints that power might exert in the emancipation of individuals. They have related the raising of moral issues to emancipation and to situations of 'oppression' (like corruption and coercion). Apart from this awareness, it seems that there is little guidance for practitioners on how to identify issues of concern or how to understand themselves as individuals who are influenced by the context in which they are intervening. This could put individuals in a situation of not reviewing critically the ethical role that they are performing if coercion, corruption or the needs for emancipation are not identified. Flood and Romm argue that learning is achieved when dealing with different situations. About those situations that can be distinguished as of 'might and right' issues, it is not clear how learning leads

practitioners to be more aware of their own ethical concerns and how they can develop these concerns in situations where there could be coercion.

From the above, it follows that self-reflection and reflection with others needs to be more explicit about how is that practitioners become more aware of their own ethical concerns and how they should deal with them. Moreover, in interventions this awareness seems to be influenced by the interactions that practitioners have with others. The use of power seems to account for the existence of relations in which there could be constraints for interaction and critique, and continuing 'tensions' between personal concerns and other people's concerns. These situations need to be addressed explicitly if the notion of power is going to be used to foster critique towards improvement.

10.3.3 Critical appreciation

It was argued in the previous chapter that the raising of ethical issues which emerged in interaction with others led to the emergence of an ethical subjects (like myself) whose concerns seemed to have impact in the wider of society. An approach to enhance critique at both individual and collective levels bearing in mind the impact of choice in society has been defined by Gregory (1992, 1996 and 2000). She has provided an extensive and comprehensive form of critique called Critical Appreciation. In it, there are different elements that should be taken into account if an inquiry into improvement in a situation is aimed at achieving the emancipation of those which take part in such situation.

Gregory follows the work of Habermas (1972) to argue that emancipation entails a process of transformation by which individuals are more able to satisfy their own needs and desires. Emancipation will constitute a constant premise in the work of Gregory as it appears influencing the elements that constitute the critical appreciation model. To achieve a degree of emancipation it is necessary to remove the barriers or obstacles that already exist in society in order to allow individuals to satisfy these needs.

In the development of her model, Gregory emphasises the set of interactions between a self (individual) and others as the focus of a critical inquiry towards emancipation of individuals. These and other elements will be presented in the next

sections. To begin with, the elements of Habermas' human interests on which Gregory relies for her form of inquiry will be presented.

Gregory (1992) follows Habermas's (1972) account of human interests as guiding any form of inquiry in the different human sciences. Based on them, the aim of Gregory is to provide a form of critique that could bring emancipation to individuals in society. For Gregory (1992), any form of social inquiry should be constituted by approaches or methods which could achieve the satisfaction of these interests (technical, practical and emancipatory). By being emancipatory, a form of critical inquiry should consider an emancipatory type of interest(s) as "based in the human capacity for self-reflection, to be self-determining in deciding the ends to which the technical and the practical interests might be put" (Gregory, 1992, p. 171).

To support the above, Gregory chooses a form of inquiry called critical appreciation. Critical appreciation aims to achieve the emancipation of individuals by overcoming suffering and removing barriers to understanding which are created by distortions in "both spheres of human interests: communication (language) and behaviour (work)" (Gregory, 1992, p. 185). This form aims also at being critical by revealing the objective structures of work and language, with an analysis of the normative content of those interests. In such type of inquiry, there should be the following types of methods to allow a richer understanding of a situation (Gregory, 1992):

1. Objective appreciation of the world. This type of method would allow a researcher to appreciate the social world as composed of tangible social structures that can be observed
2. Subjective appreciation. The understanding of a situation by using this type of method is based on inter-subjective communications. An observer of a situation becomes a participant-observer, focused on gaining a degree of communication and interaction with others involved in a situation as a context of meaning(s).
3. Critical appreciation. Methods should allow a researcher to be self-reflective, i.e. to analyse his/her own assumptions regarding his/her own understanding of a situation, in order to change them if necessary when he/she seeks emancipation with others involved in a situation.

The integration of the above types of methods leads Gregory to propose that in critical appreciation there should be two categories for inquiry: one *scientific*, in which methods from the empirical/analytic sciences are used as well as methods from the

historical-hermeneutic sciences. This category of inquiry should aim to understand the self-formative nature of society, how things are and how they came to be the way they are, in terms of data, people's understandings of a situation, as well as the historical preconditions surrounding the object or subject of inquiry.

Scientific inquiry is complemented by *reflexive* inquiry, a type of inquiry that is concerned with the output of the scientific inquiry and the assumptions held by those involved in a situation and the researcher him/herself. In this category of inquiry a researcher and others might define some actions towards what they consider could be most appropriate towards their emancipation (Gregory, 1992). The reflexive type of inquiry is also part of a "learning process in which researchers, as participant-observers, and all other stakeholders must engage" (Gregory, 1992, p. 199). It will be explained as follows.

10.3.3.1 Self-reflection and ideology critique

Gregory (1992) then proposes two forms of reflexive inquiry that inform, and are informed by, scientific inquiry. These forms are self-reflection and ideology critique. To define these two forms, Gregory (1992) takes further the idea of Habermas in which the type of reflection proposed by psychoanalysis for individuals can be seen as also fostering a critique of society. Hence, individual analysis can be translated into a form of societal analysis (Gregory, 1992, p. 191).

The first form of inquiry (self-reflection) fosters reflection on the assumptions that subjects have regarding themselves as subjects living in a society, in order to free themselves from distortions and flaws in communication with themselves and others. These distortions and flaws have created 'schisms' in the human being's relation to the world which result in deceiving individuals about themselves (Gregory, 1992). Self-reflection aims at removing such obstacles to enable individuals to gain a better understanding of themselves by showing them the distortions and flaws they have accepted regarding what they consider is 'leading a good life' (Gregory, 1992, p. 207). In this way a degree of self-awareness is gained and society will also benefit from it, as individuals will be prevented from future subjugations (repressions) of their genuine interests.

Gregory argues that for an individual, the process of self-reflection demands a degree of interaction with others. This is in order not to make reflection 'monological' and isolated from the context in which an individual self is developing. Also, self-reflection demands commitment and also taking risks of uncovering understandings that would not be easy to accept (Gregory, 1992)[118].

To support the above form of inquiry, Gregory proposes the following activities to be conducted, preferably between a self and an analyst:

- ✓ Objective appreciation, in which the manifested events of a self are gathered.
- ✓ Subjective appreciation, in which there is a process of interpretation of the events of a self. A 'latent' (hidden) content is unveiled in the interaction between a self and an analyst in dialogue.
- ✓ Critical self-reflection between both self and analyst about how their own observations influence the understanding of events and their situation in society. In this set of activities, there are questions that emerge about the analyst own presuppositions as well as about areas like "ethics of disclosure, moral issues" (Gregory, 1992, p. 233). To respond to the questions that emerge, it is expected that individuals will take decisions regarding future courses of action in the relation between themselves and their social world (including their own relation to themselves). Gregory does not seem to give much guidance to individuals on how to deal with these ethical issues. This will be explored later in this chapter.

As seen, the process of self-reflection entails a critique of assumptions granted by individuals. After these activities, Gregory argues that a self achieves a better understanding of his/her own assumptions and actions. This critique might result in specific actions of individuals towards their emancipation. However, Gregory (1992) argues, this sole form of reflection is not complete. It is necessary to consider the context in which individuals interact. It is necessary also to re-construct the socio-historical context underlying the problem situation and events studied in order to influence the setting in which the actions of an individual will take place. For this, Gregory argues that another form of inquiry is required: ideology critique.

[118] There are some other issues that psychoanalysis brings for practitioners to take into account (Gregory, 1992). The unveiling of distortions (or areas of intentionality which a patient unconsciously wants to avoid recognising) could be a source of resistance (or denials about their existence) by him/her and of intensification of his/her conflicts. Also, for psychoanalysis to work, patients must accept a

The second form of inquiry (Ideology critique) is a reflection on the social reality in which individuals interact as affected by the ideologies that they share on how society should work. In an ideology, Gregory argues, there could be elements that distort individuals from achieving better interaction with others and a more appropriate satisfaction of subjects' needs[119]. A change in perceptions about a social reality involves altering individual preconceptions about it together with changes to the inter-subjective understanding and objective features of material conditions.

Similar to self-reflection, ideology critique also entails developing views about a problem situation, which is influencing a 'target group' of individuals[120]. To elaborate the set of views, researchers should use objective appreciation methods as well as providing a set of interpretations about the situation and the ideologies that have led to its emergence[121]. This will constitute the input for a process of critical reflection, in which alternative ideologies contrast with or complement the dominant one(s). As in self-reflection, the focus of critique should be to identify possible sources of distortion or illegitimacy in power-relations, which have led individuals to accept certain conditions in their interactions with others and towards the apparent satisfaction of their needs. As a result, a theory about the 'false consciousness' is elaborated as based in the dominant ideologies in a situation.

To challenge the above dominant ideologies, there should be room for examining a plurality of views, Gregory (1992) argues, including the researchers' own ideologies. These views should be criticised on the grounds of their appropriateness to the specific and historical context of application given the problem situation. Critique involves interacting with those who belong to the wider context in society in order to ensure the adequacy of any proposed transformation in the ideology (or ideologies) for different groups in society. It also demands securing the participation of the target

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diagnosis made by them and the therapist as true, and must be willing to liberate themselves from the distortions identified (Gregory, 1992).

[119] Gregory (1992) brings the views of Habermas, Giddens and Marx which have criticised the influence that certain ideologies have had in alienating people in their pursuit of the satisfaction of their needs. Gregory is aware of the historical and local emergence of ideologies and their criticisms. Because of this, she adds an element of self-reflection when researchers are criticising existing ideologies that will foster their reviewing their own assumptions.

[120] This group should be identified as those to whom critique should be addressed (Gregory, 1992).

[121] For researchers this involves interacting with others (people, other researchers) in order to interpret, modify or enrich their own ideology about a problem situation (Gregory, 1992). One of the forms that Gregory (1992) proposes is the use of consultation with those involved in a situation (target group) in order to reaffirm "the group's current dissatisfaction and possibilities for improvement" (Gregory, 1992, p.302). Another form is gaining insight into the current situation by interacting with those who possess (inside or outside the target group) alternative interpretations to what is happening and why it is happening (Gregory, 1992).

group for whom the critique is in the transformation process of a problem situation (Gregory, 1992).

As in self-reflection, in ideology critique questions concerning "ethics of disclosure and other moral issues" (Gregory, 1992, p. 303) could emerge. They should be dealt with in interaction with people involved, considering the nature of decisions as being contingent to the historic and local situation and affecting a wider community of people in society. Individuals should be able to decide what is right and wrong to support, according to what comes out in the process of reflecting with others about the consequences of actions.

The process of ideology-critique is continuous, as there are new ideologies appearing and influencing the actions of people in society. It is iterative, as new understandings of a situation influence the ideologies that people and researchers adopt. As a result of this process, Gregory (1992) argues that people (with the support of or within a target group) will become enlightened and also emancipated.

From the above one can infer that dealing with ethical issues is related to critique on ideologies in order to account for what individuals consider right or wrong to do. It seems that practitioners are subsuming their ethical concerns into a form of inquiry that aims to uncover issues coming from ideologies and that can be judged (in interaction with others) as having ethical implications. Raising ethical concerns seems to depend on achieving certain conditions for communication, a form of communication aimed at achieving emancipation.

10.3.3.2 The Model of critical appreciation

From the above two forms of inquiry, Gregory (1992) argues that both critical self-reflection and ideology critique are required if "an inquiry is to result in the emancipation of individuals and groups" (Gregory, 1992, p. 189). Based on this premise, she develops a model that incorporates both processes of self-reflection and ideology critique as affecting each other. When put in practice, both processes share a set of methodological guidelines that are derived from the discipline of psychoanalysis and will allow the combination of the different methods to address human interests like the ones described. In this way, self-reflection and ideology critique will contribute to removing the distortions which prevent both technical and practical interests from being used in the service of emancipation (Gregory, 1992).

Gregory (1992) develops a model of critical appreciation to join reflexive and scientific inquiry. This will be presented in the next section.

Gregory (1992) argues that in society, any process of transformation of individuals has to consider that they have a twofold role in society. On the one hand, the social world in which individuals are immersed shapes their individual lifestyles ("lifeworlds" or structures[122]). On the other hand, it is individuals who can also reproduce existing structures in society or produce changes in themselves and also in those structures. In order to do the latter, they have to become aware of existing ideologies and avoid supporting the status quo of the dominant ideology or ideologies. They can also influence change through collective action with others with whom there is a similar concern or concerns about society.

Hence, society can be seen as the medium and outcome of individual action. This premise bounds individual action and gives it context, and highlights the influence of the actions of an individual self in society by also providing grounds for a critique on individuals and social structures[123]. According to Gregory (1992), both processes of change in society (the influence of society in shaping individual choices and the transformation of society by individuals' actions) should be taken into account regarding any change. Gregory will say that

> it is due to the *mutual interaction of these processes* that the transformation of society, and the emancipation of individuals from subjugating forces, must involve all parts of the critical appreciation process (Gregory, 1992, p. 321).

What Gregory is proposing with the above is to integrate both self-reflection and ideology critique in a single framework that accounts for both reflection and discourse influencing individual and society at the same time. She sees that self-reflection will produce change in individuals and through them in society. Ideology critique will also supports the production of change in society by unveiling the false ideologies that dominate interaction between people and the relations of individuals with themselves.

[122] Following Husserl and Habermas, Gregory (1992 and 2000) uses the concept of life-world as the set of symbolic structures reproduced in societies through cultural tradition, social integration and socialisation. This set provides both context and resources for the actor in society who strives to achieve understanding. The concept of lifeworld is very similar to that of structure proposed by Giddens and described in this thesis (Chapter three). These concepts provide individuals with a medium and outcome for their actions in societies.

In both self-reflection and ideology critique, individuals (including researchers) can use both empirical-analytic and historical-hermeneutic methods to assist critical questioning about individuals and social settings as influenced by ideologies but with possibilities of exerting a degree of agency or collective action towards emancipation.

For Gregory (1992) this synergy between self-reflection and ideology critique produces an emergent property: emancipation. This property can be distinguished in the changes that are derived both in individual and collective attitudes towards improving conditions to satisfy needs and interests.

The interactions between self-reflection and ideology critique in the process of self-society dynamics can be seen in the following figure:

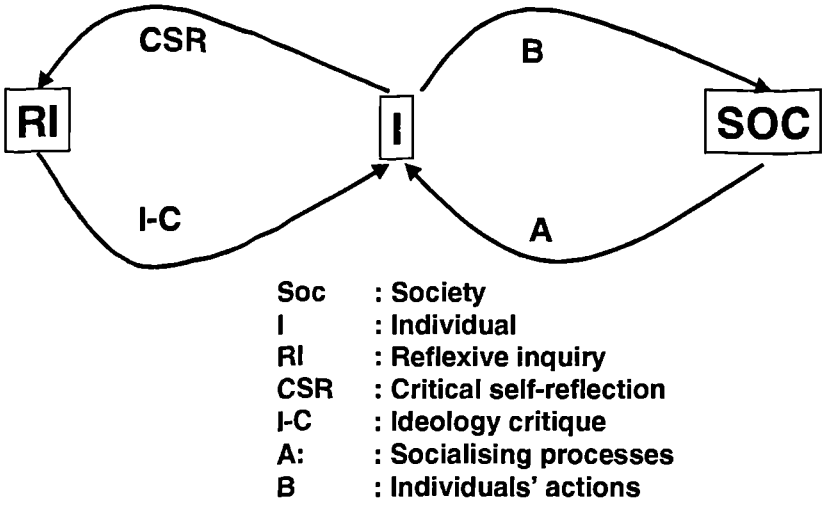

Figure 10.1. Self-society dynamics (Gregory, 1992, p. 353).

In the figure above, the influence that both critical self-reflection (CSR) and ideology critique exert upon the individual and his/her actions in a process of reflexive inquiry can be seen. This influence is framed within the socialising processes in which an individual is immersed as a member of society. Also, the influence that individuals have on society is manifested in the processes of ideology critique and individual actions, which have an impact on the social setting(s) in which individuals take part.

[123] Gregory (1992 and 2000) will also argue that if no critique is made towards social structures, they will continue to re-create themselves. Individuals need to reflect on the consequences that the prevailing of certain social structures will have for them as individuals (Gregory, 1992 and 2000).

Both processes of ideology critique and critical self-reflection seek to foster change in individuals and their circumstances, bearing in mind that people affect and are affected by the social settings in which they interact with others.

In her model, Gregory (1992 and 2000) puts emphasis on encouraging practitioners to be able to appreciate different views about a situation. She suggests that practitioners should be able to review their own assumptions when interacting with others people in a such a way that differences are respected and appreciation of 'alien' paradigms can be managed to foster learning about a situation. In communication, a view of 'dissensus' between different positions about a problem should be fostered[124] in such a way that the 'otherness' of paradigms is recognised and critique could be developed.

The figure above also shows that there is a systemic impact in society. Enhancing the individual's critical position may also contribute to changing (or reinforcing) his/her social setting (Gregory, 1992, p. 348). The impact of any individual action is seen within its context. Nevertheless, despite the consideration that Gregory has of examining how change can be best fostered in society, one question that emerges regarding the promotion of change by any individual is: on which ethical grounds is he/she fostering change? It appears that Gregory is aware of the need for an individual to interact with others in order to consider the consequences of dealing with ethical issues that could be distinguished by him/her. It is in this interaction between an individual self and others (supported by forms of inquiry that aim to eliminate barriers to communication) that the appearance of ethical issues takes place.

In interaction, Gregory (1992) is also aware of the existence of possible conflicts between different views exhibited by different individuals. To address this situation, she fosters a process of reflection and debate which should be based in "good rational argumentation" (Gregory, 1992). By this she means that different groups

[124] This position of Gregory (1992) is based on the ideas of Bernstein (1991), in which Habermas' discourse can be seen as allowing difference and plurality between individuals. Recall Gregory's critique of Flood and Jackson's Total Systems Intervention (TSI) (Flood and Jackson, 1991a, 1991b) described before in this chapter in which different systems methodologies are 'frozen' under the interpretation that TSI as a meta-methodology gives them (Gregory, 1992 and 1996). Gregory (1992) will base her work on appreciation from a review of approaches used in anthropology to appreciate 'alien' cultures. She will conclude that only a form of critical appreciation will allow us to respect differences and to solve potential conflicts in communication between people having different views about a situation.

involved or affected by a decision are included in debate[125]. Argumentation aims to define which of the positions are 'good' and which are not, according to the particular historical and local context of the situation on which critique is taking place.

But would the above be possible? Gregory seems to assume that an individual raising ethical concerns before others gets motivated to debate and take further part in inquiry; in other words, once individuals raise concerns, they should be continuously engaged with others in argumentation and this can take the form of 'good and rational'. To this perspective, some more questions arise: what if people do not want to argue or justify their positions? What if an individual finds him/herself in continuous conflict with others regarding ethical issues arising?

These two questions resemble the critique made about CSH in chapter four of this thesis. Some people (those in power for example) might decide not to engage in debate with others. Conflicts might appear which cannot be solved on the grounds of achieving a form of rational argumentation. It seems necessary to be critical about the context of interactions in which individuals develop reflection. Gregory's approach could consider this issue, also in relation to the more explicit dealing with ethical issues, as will be presented in the next section.

10.3.3.3 Dealing with ethical issues

Following the ideas on 'good' argumentation, Gregory (1992) argues that in decision taking, ethical judgement should be brought forth to debate "in order to answer ethical questions about the rightness or legitimacy of a particular perspective" (Gregory, 1992, p. 453). She proposes to inform decision taking in argumentation by critical self-reflection and ideology critique and the methods in which they are supported (empirical-analytic, historical-hermeneutic and methods that foster reflection towards emancipation). She also argues that any decision can be evaluated morally in terms of its acceptance by a wider (part of the general) population in a society (Gregory, 2000). This entails that when there are different ethical positions in a situation, they should all be considered as having a degree of

[125] Gregory (1992) considers that the use of Critical Systems Heuristics (CSH) (Ulrich, 1983) is useful when thinking of different groups of people that should be involved in a decision (for example, the witnesses, designers or decision takers in a situation).

valid justification[126]. There is indeed a concern with dealing with ethical issues in the interaction with others, however this concern does not go very much in detail in exploring the nature of ethical concerns, their appearance, and the possibility of being critical about them.

Also, although in the process of critical appreciation the locality and temporality of a situation is considered as informing ethical decision taking (Gregory, 1992 and 1996), there does not seem to be in Gregory's account any ethical grounds on how to proceed differently from aiming at emancipation. Gregory would say in this respect: "one must use one's critical faculties to decide in a local, historical, manner" (Gregory, 1992, p. 462). But what are these faculties? What if ethical issues arise continuously in an individual?

Gregory (2000) seems to recognise that an individual will be in continuous *tension* with others, when she acknowledges that collective action is needed but that there has to be space for an individual. Talking about her idea of becoming more critical, she says:

> I now realise that I could widen my research for socially active groups until I find one that more closely (but not too closely! — I do still want to be challenged *a bit* —) matches my own needs. Alternatively, it is open to me to set up a group myself (Gregory, 2000, p. 495, my italics).

What Gregory seems to be implying with the above is that there is a phenomenon of *tension* which needs to be addressed, when an individual is interacting with others and finds that he/she and others have different ethical positions. This is similar to the phenomenon of 'ethical blindness' I encountered when I interacted with people at Javeriana. This experience has made it necessary to explore the situation of an individual raising ethical issues by him/herself when he/she is in tension with others. A similarity with this experience is also found in the account of practitioners facing situations of power in organisations when a degree of 'astuteness' is suggested to practitioners, as was mentioned before in this chapter. But how is one to proceed further?

[126] This perspective resembles a strong similarity with the invitation to co-existence brought forth by Maturana(1988) and Maturana and Varela(1992). In Gregory's account (Gregory, 1992), different views are invited to co-exist in debate before decisions are taken.

It seems then that Gregory's account is valuable in proposing a way of reflection that fosters discussion about issues of concern for individuals and groups. This way of reflection considers the diversity of views and concerns. There is the need however for the use of critical systems thinking to go beyond the model and provide practitioners or individual selves with ways of reflecting critically about their ethical concerns when they are dealing with others. Such concerns appear continuously as a continuous tension between individuals and groups.

10.4 Towards a More Comprehensive Understanding of Self and Others: The Importance of Power.

So far, the different approaches of CST reviewed in this chapter regarding the interaction between self and others reveal the complexity of situations of interaction and the possibilities of developing critique about these situations. In some approaches (for example diversity management), there is a kind of mediation played by a methodology to account for the self-reflection and reflection with others. In these cases, the methodology defines a role based on emancipation for the practitioner, but this role could not include all of the practitioners' own ethical concerns.

However, the use of power to understand the continuous tensions between a self and others brings a possibility for the understanding and management of situations of conflict between different ethical positions. If this is the case, the notion of power should be more comprehensive, to account not only for situations in which knowledge is suppressed or produced locally, but also for those situations in which ethical concerns constitute the core of concern for practitioners. It should also offer possibilities of enhancing the critique that a self could develop on him/herself and of his/her interactions with others as Gregory (2000) has proposed. The approaches that have used the notion of power (Flood, 1990; Flood and Romm, 1996b) seem to account for the possibility of using power as a vehicle for critique. However, the management of ethical concerns in the interactions between self and others receives little guidance.

For the development of a more enriched framework to support the process of ICTP and practitioners as ethical subjects, the management of interactions as interactions between different ethical concerns should be made with an awareness of the tensions that a self might have with others. Critique could be developed around

these tensions and provide a self with awareness on his/her own ethical concerns. This critique could also complement the critique developed so far in the framework to intervene in ICTP by using the notion of concerns as systems boundaries, boundary critique and the Autopoietic condition of human beings.

With these ideas in mind, it is proposed to review the notion of power of Foucault and see the possibilities that he offers to understand situations of interaction characterised by the raising of ethical concerns. This will be done in the next chapter. Then these possibilities will be enriched with ideas that complement the systems boundary critique with Foucault's use of power, as authors like Vega-Romero (1999) have proposed.

10.5 Conclusions

In this chapter, some approaches of Critical Systems Thinking (CST) have been reviewed from the perspective of fostering self-reflection and reflection of a self with others in interactions. A common phenomenon of *tensions* between a self and others has been bound and has been explored from different perspectives. This phenomenon has been dealt with by using notions of human interests, communication and liberation of suppressed knowledge with the use of power. There is the possibility of addressing these tensions from two additional perspectives that have emerged in the previous discussion:

- The existence of power in human interactions.
- The relationship between power and the raising and management of ethical issues by a self who is interacting with others.

An alternative account for the interactions between self and others should consider also that critique should be conducted of the above two perspectives and in the interactions between a self and others as having impacts in wider society. This latter aspect has been developed through the work on boundaries used previously in this chapter, and it has also been mentioned in some of the approaches reviewed in this chapter.

With these ideas in mind, in the next chapter the notion of power and ethics in the work of Michel Foucault is explored.

Chapter 11: Foucault's Project on Power, Knowledge and Ethics

11.1 Introduction

In the last chapter, I argued that the notion of power could offer possibilities to account for the situation of a practitioner engaged in interaction with others characterised by a tension between different ethical positions. In the practice of ICTP at Javeriana, the framework used enabled me to recognise the above situation. The notion of power has been used in the realm of CST to offer possibilities for improvement in a situation. This chapter intends to go further in the exploration of the concept of power of Michel Foucault and include his work on ethics to complement power with a notion of power-ethics.

Foucault's work has been used in Critical Systems Thinking (CST) as it was presented before. In this chapter I will argue that there is an element in ethics that does not seem to have been included in CST[127]. This could prove very useful to account for the different ethical tensions that appear when a practitioner like an ICTP is developing his/her own practice and for the identification of individuals and groups as ethical subjects.

By reviewing the work of Foucault on power, knowledge and ethics, I will put emphasis on the project that Foucault is proposing for a self, a kind of ethical quest, which should be done considering the relationship that a self should have with itself in a critical way. Hence, the emphasis that I am proposing has to do with the importance for a self to be critical about him/herself *before* embarking into any interaction with others, although a self is already engaged with others.

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[127] I would like to summarise the main developments in CST which, have included the notion of power derived from Michel Foucault's work. As was said in the last chapter, the work of Flood (1990) used interpretive analytics. Also Flood and Romm have accounted for the use of power in enhancing learning in interventions. Valero-Silva (1996 and 1998) used the interpretive analytics of Foucault to provide a critical history of Critical Systems Thinking. Midgley (1997a) proposed enhancing critique on boundaries with an exploration of those boundaries emerged from the development of power in the shaping of identity of individuals. Midgley (2001) sees that there are possibilities of developing critical questioning about the use of power in boundary critique. Vega-Romero (1999) develops a series of methodological guidelines to account for a framework to evaluate critically the administration of health services in Colombia. This latter work seems to be closer to the work developed in this thesis regarding the use of Foucault's concepts of power. Vega-Romero goes further to provide a critical view on how knowledge about health services is produced and how it should be produced. My work follows the path established by Midgley (1997a and 2000) and Vega-Romero (1999) in providing this view on ethics and power to enrich systemic intervention.

The term 'before' above will not exclude but enrich the interaction with others. Let me explain. I consider that this self-critique appears when an individual questions his/her own ethical concerns. In my case, this happened when I was at Javeriana. I was already engaged with others and I wanted to be engaged. A self-critique, I will argue, will allow a self also to be critical in his/her interactions with others. I recall that a self needs to be 'ready' to interact with others. This seems to go in line with the work of Gregory (1992). She emphasises also the importance of self-reflection as was seen in the previous chapter. When she brings into discussion the possibilities given by psychoanalysis to foster self-reflection, what she seems to propose is a critique on an actual self as he/she might have distortions about being in the world that do not allow him/her to interact with others. In psychoanalysis, self-analysis needs to be done if a self decides to establish stable relations with his/her own environment, including his/her own fellow man and women (Fromm, 1975).

My presentation of Foucault's work contains the following parts: 1. the research project designed and carried on by Foucault. 2. Foucault's notion of power. 3. Power as an analytical tool. 4. Foucault's work on sexuality. 5. Implications of the notions of power and ethics of Foucault for the practice of ICTP and for the moral quest of the self nowadays.

The narrative of Foucault has been made using the term ethics instead of morality, as it seems that it appeals more to him in his works. Nowadays these terms seem to be used indistinctly (Maclagan, 1998). The chapter will conclude with implications of the work of Foucault for the practice of ICTP and for the moral quest of a self (like myself) in modern society.

11.2 Foucault's Research Project

Although the work of Michel Foucault (1926-1984) was mainly in the area of history, he cannot be declared only a historian; nor entirely can he be declared a philosopher or politician. His work on the history of Western civilisation has provided an interesting insight for the problem of the subject. As he has declared, although he has explored history and phenomena through it, his work has been focused on providing a view of how human beings are made subjects (Foucault, 1982a). For Foucault, the meaning of 'subject' is twofold: "someone subject to someone else by control and dependence, and tied to his own identity by a conscience or self-

knowledge" (Foucault, 1982a, p. 212). Both meanings in the above definition suggest a form of *power,* which subjugates and makes subject to (Foucault, 1982a).

For Foucault, through history the result of this unfolding in the definition of a subject and continuous search for the truth is the emergence of 'normalisations' due to the operation of power. These are systems of finely graded and measurable intervals in which individuals can be distributed around a norm — one which both organises and is the result of this controlled distribution — (Rabinow, 1991a). These systems are opposed to systems like the law or what Foucault calls personal power systems (Rabinow, 1991a).

In the development of Western society according to Foucault there has been a continuous will to knowledge about Man, a continuous search for truth regarding human life (Foucault, 1977b). This search is endless and has not arrived at a truth as such (Foucault, 1977b). Meanwhile, populations and individuals are 'made' subjects that are in constant need of exploring 'the truth' about them. One of these has to do with ethics as the practice of 'good living'.

The work of Foucault has gone through different stages. As Darier (1999) has said, it seems that there are three different 'Foucaults' in his work. Darier refers to the different methodological approaches that Foucault has used to provide his account on the modes of subjectivity for individuals, and the different focuses that have been identified. The approaches that can be identified in Foucault's work are 1. Archaeological (its purpose is to reveal the various historical layers of what constitutes, or constituted accepted knowledge in society[128]). 2. Genealogical (it explains the broader context of social practices in which the generation of knowledge was immersed, considering the existence of power relations[129]). 3. The Final Foucault (in which he embarks in providing a history of how individuals were made sexual objects and subjects of study with a concern about the possible conditions for

[128] Archaeology is an approach that attempts to undertake excavations of historical texts and build a configuration of how knowledge has been organised through history; it also explores the kind of justifications that are deemed acceptable to support the knowledge. The focus of Archaeology in Foucault's work was on scientific discourses, and how objects of legitimate scientific investigations emerged in history.

[129] Genealogy is better understood as a method that records the singularity of elements outside any monotonous finality or any indefinite teleology in the production of knowledge. It intends to show the heterogeneity of knowledge in reaction to the traditional conception of knowledge as being consistent with itself. Genealogy explores the context of knowledge. This context refers to the vast heterogeneous web of social practices criss-crossed by relations of power. Genealogy offers the possibility of describing the conditions of emergence of the present at the micro-level of 'forgotten' social practices. Power relations are considered as embedding social practices, particularly at the micro-level of daily life.

the creation of self by itself. These approaches were developed through time and provided different insights on the problem of the subject (self).

Through the above approaches, Foucault identified different modes of subjectivity of individuals (Foucault, 1982a, p. 208): 1. The modes of inquiry which try to give themselves the status of sciences; they objectify their subject of study. 2. The practices that divide a subject into categories (via classification of people into the sane, the sick, the healthy, the criminals and the 'good boys'). 3. The way a human being turns him or herself into a subject of knowledge, for example as a sexual subject or as an ethical subject (although these two are related, as will be explained later).

Foucault's purpose in his work is to try to

> see how these processes (science, politics, ethics) may have interfered with one another in the formation of a scientific domain, a political structure, a moral practice (Foucault, 1982b, p. 386, my parenthesis).

The concern about ethics appears for Foucault in the final stage of his work. It is, however, a result of his explorations of the issue of sexuality. The historical account that he provides on this issue is enriched with his understanding of the conditions that made possible the generation of knowledge and the transformation of sexuality into a political problem through time. In order to provide Foucault's view on ethics, it is necessary then to approach other concepts obtained from the different approaches that he used. First of all, it is necessary to understand the philosophical stance from which Foucault's quest is derived.

11.2.1 What is Enlightenment?

Foucault provides an alternative interpretation of Kant's project in the Enlightenment. He bases this interpretation on an article of Kant about what the Enlightenment was (published in 1784) (Foucault, 1984a). In it, Foucault notices that Kant is perhaps the first philosopher who relates his work on producing knowledge on a tradition to his own personal purposes in society. For Foucault, Enlightenment has a different meaning from the one assigned traditionally. It means 'a way out', an exit. Foucault's view is related to Kant's position as a way out of traditional ways of thinking for those immersed in the practice of philosophy as a way of life. According

to Foucault, Kant is aware of the context in which human reason has to operate. For Foucault it means a self should follow the maxim: "obey, and you will be able to reason as much as you like" (Foucault, 1984a, p. 36).

The above means for Foucault setting up limits for reason, but more importantly being aware of a new notion of *self about himself within society.* It is a notion in which the use of reason for a self has different spheres of activity. One is public, in which a self takes part by 'obeying', and one is private, in which there is a degree of freedom for a self to 'dare to know' (Foucault, 1984a). Thus the Enlightenment for a self like Kant has a political dimension (public use of reason), but also a personal one. These two dimensions will constitute the basis of Foucault's historical analysis on the problem of the subject.

Foucault's interpretation of Kant's view on the Enlightenment also provides an account of Foucault's own quest. He sets the view of philosophy as a style of living in which one is able to think differently from what one has been (Foucault, 1980b and 1984a). By declaring that Kant is also putting himself into the problem of Enlightenment and creating a space for the personal use of reason, Foucault seems to suggest that Kant is aware of the impossibility of having an autonomous subject who is striving for achieving universal truths. For Foucault, Kant is setting the example of living in the present while imagining the ideal present; *Kant is producing himself while living in the present.* This for Foucault is what philosophy and ethics should be about. In modernity,

> the high value of the present is indissociable from a desperate eagerness to imagine it, to imagine it otherwise than it is, and to transform it not by destroying it but by grasping it in what it is...extreme attention to what is real is confronted with the practice of a liberty that simultaneously respects this reality and violates it (Foucault, 1984a, p. 41).

This indeed shows an attitude to reality, which will influence Foucault's exploration of themes that he considers essential to understand the modes of subjectivity of human beings through history. This exploration is also imbued with an understanding of the notion of power that is used to support his analysis of issues that include sexuality and ethics. A characterisation of power will be presented now.

11.2.2 The notion of Power

For Foucault, the understanding of the modes of subjectivity already present in society is strongly related to the notion of *power*. The concept of power has helped Foucault to understand how different practices of making individuals subjects of knowledge have pervaded society as a whole. These practices have been associated with the existence of discourses about truth which compete with one another (Rabinow, 1984). Power in society is a vehicle by which these discourses are made 'true', i.e. accepted. Power changes those rules of formation of statements which are regarded as scientifically true (Foucault, 1980a, p. 54). History for Foucault is a history of relations of power between subjects in the form of a 'war' rather than a form of a language (Foucault, 1980a). It seems that power plays an essential role in the shaping of these practices of knowledge that have contributed to made individuals subjects.

What is power? In the works of Foucault one finds various definitions[130]. They are also related to the analysis of power that Foucault makes of different phenomena in society. Power is an analytical tool, which for Foucault is not an objective concept, and is identified more in its operation in relations between selves (subjects) (1977b, 1982a). Power is a set or grid of relations (Dreyfus and Rabinow, 1982). It is the operation of political technologies throughout the social body. Power produces non-egalitarian and mobile relations. The operation of power is localised spatially and temporally in different instances. Hence, "power is a general matrix of force relations at a given time, in a given society" (Dreyfus and Rabinow, 1982, p. 186).

As a grid of relations power has pervaded not only institutions but also groups and individuals (selves). Power is "capillary, diffused and everywhere" (Darier, 1999, p. 19). Foucault sees that a traditional understanding of power in society has been based on the existence of a law in which there are rights and prohibitions. This understanding is insufficient to understand the dynamics of the modes of subjectivity or modes in which selves have become subjects of power in society.

[130] The most complete definition found is in Foucault (1977b, p. 93). It seems that Foucault needed to explore the issue of sexuality to produce a comprehensive definition of power that refers to the operation of it.

Power goes beyond this 'juridical' notion and penetrates the practices of daily life of people. Power allows things to be done. Power is inherent to the operation of society. Power "stems from aptitudes directly inherent in the (social) body or relayed by external instruments " (Foucault, 1982a, p. 217). Power brings relations into play. It designates relationships between partners, assembling actions, which induce others and follow from one another (Foucault, 1982a). Power is related to communication between selves, as any discourse brings results in the realm of power. Moreover, communication is deployed through the network of power relations that operate in a given society at a specific time. The network is maintained continuously as there are emerging accounts of a phenomenon in society that intend to provide the 'truth' about it, without achieving it (Foucault, 1977b).

Hence power is a "total structure of actions brought to bear upon possible actions: in incites, it induces, it seduces, it makes easier or difficult " (Foucault, 1982a, p. 220). It is a way in which certain actions influence other actions. The operation of power is manifested at different levels: either as targeting individuals in their possibilities of being 'subjects' (selves) or in the guiding of the conduct of groups. This latter form of power is manifested in the emergence of a phenomenon that is called by Foucault 'governmentality' (Foucault, 1980a). In governmentality not only legitimate forms of political or economic subjection are accounted for, but also different modes of action that subjugate an individual to certain practices[131] (Foucault, 1977b). Foucault uses this notion to approach modes of subjection that are based in the power of normalisation of individuals.

Power produces knowledge (about subjects or selves) which in turn reinforces or changes power relations. Foucault shows in his first works that the production of knowledge is 'deployed' via power relations. Knowledge in turn contributes to reinforce power relations but also to modify them by opening in discourse new possibilities for action (Foucault, 1980b). Foucault also associates the phenomenon of knowledge generation with a political situation in which conditions are made valid for knowledge to be produced and to be accepted. In this way, Foucault relates all phenomena in society to the spheres of science, politics and morality. The latter appears when knowledge and action are considered the 'right' thing to do, and knowledge becomes 'true' in opposition to discourses and possibilities for action. In

[131]Practice for Foucault seems to mean a set of actions that constitute a subject, either individually or collectively (Foucault 1977b). It is the case for example of sexual practices as actions that defined how 'normal' a subject was or not.

short, a political problem makes the production of certain knowledge relevant for a society and is also made a moral problem (Foucault, 1980a and 1982b).

The existence of power implies for Foucault that there is also resistance to it (Foucault, 1977b). For Foucault, phenomena of resistance reside *in relation to power*, not outside it. Resistance is present in different points in the network of power and it helps to maintain the network of power (Foucault, 1977b). So when one is resisting one is helping to maintain power relations. About this Darier (1999) says:

> because instances of normalisation and resistance constantly interact in a dynamic manner, reversals occur. Yesterday's resistance can become today's normalisation, which in tum can become the conditions for tomorrow's resistance and/or normalisation (Darier, 1999, p. 18).

Resistance might reside at the points of conflicts encountered in the deployment of power. For power that aims to normalise subjects as individuals, Foucault has focused his attention on situations of conflict regarding forms of individualisation promoted in society either as a liberation from an imposition or as a free choice by individuals (Foucault, 1982a). This includes those struggles against an imposed individuality, or those situations of 'normality' in the development of individuals.

The above attributes for the notion of power give it a more comprehensive perspective that the one which was adopted in early developments of CST using Foucault's ideas (Flood, 1990; Flood and Romm, 1996a and 1996b). Resistance cannot avoid using power. Subjects are not entirely free of power constraints when they interact with others. It might not be necessary to avoid power but to use in a more positive way to foster changes desired by an individual and others. Power also affects subjects as individuals, so they should be critical about themselves.

Another characteristic of power is that there is no power without intention. Foucault argues that at the level of local tactics, there are aims and objectives by those who exercise power. There is a conscious degree of planning, plotting, decision making (Foucault, 1977b). However this contributes to maintaining power over groups. At the local level "...people know what they do, but what they do not know is what they do does" (Foucault, in personal communication to Dreyfus and Rabinow, (Dreyfus and Rabinow, 1982)). Foucault argues that these local tactics of power combine with

others, to cancel each other out, to modify others, and form a web of intertwined tactics that support a macro-strategy of power. No one is directing power, but everyone is enmeshed in it (Dreyfus and Rabinow, 1982). Different forms of power are in tension with each other, sometimes as being part of the same overall strategy (Foucault, 1977b; Dreyfus and Rabinow, 1982). The net result is that this overall strategy modifies actions upon other actions, but it has not been defined intentionally by anyone (Foucault, 1977b and 1982a).

Also, the above 'incompleteness' of power regarding its intentions gives individuals the possibility of accepting it and exerting some choices, however limited (Darier, 1999). Individuals are allowed to take on an identity shaped by power which may be the condition for subsequent, intended actions (Darier, 1999). Instead of a constraint, this should be considered a possibility if individuals might want to foster change in society. In the long term, this could prove useful for their purposes, although they cannot foresee entirely the consequences of their actions.

For an individual as a self, the use of power as an analytical tool could mean exploring how certain practices have constituted him/herself as a subject. This will allow a self to reflect on those conditions that have influenced the process of normalisation or constraining the possibilities for his/her actions. The nature of power is dynamic and elusive. This makes reflection continuous and focused not only on those conflicts that a self experiences in the making of his/her identity but also on those practices (sets of actions) that have been accepted as normal or inevitable. For a self, exploring power also entails exploring the tensions that occur between different forms, and how in relation to these he/she is constituted and can act.

In the next section some of the characteristics of the analytics of power will be presented. They will also contribute to the awareness that Foucault is promoting in subjects as individuals and also as members of collectives.

11.2.3 What to do with and about power?

Although it follows from the above that power operates at a micro-level and also at a macro level and that total liberation from power is a delusion (Darier, 1999), is it right to say that power pervades every interaction in society? It is not necessarily the case. Power cannot operate without a certain degree of human freedom (Foucault, 1982a; Darier, 1999). Freedom as the space of possibilities for an individual appears as a precondition of the exercise of power. Power has to be exercised by and on 'free' subjects. Otherwise they do not realise the presence of power. For Foucault for example, slavery is not a distinction of power, as those who are enslaved do not have possibilities of action against it; man has chains that block any possible action (Foucault, 1982a). When there is freedom, there is power, and vice-versa. Between freedom and power there is a continuous confrontation that is stabilised when confrontation ends, to give way to new possibilities for confrontation (Foucault, 1982a). Hence, free individuals in their practices contribute to reinforce existing power relations by or to change the balance between freedom and power.

In any area of concern, Foucault has proposed the following types of questions to understand how individuals are made subjects (Foucault, 1982b):

- How are we constituted as subjects of our own knowledge?
- How are we constituted as subjects that exercise or submit to power relations?
- How are we constituted as moral subjects of our own actions?

The operation of power should not be analysed only at the level of institutions. That would lead an analyst to identify those functions that ensure the preservation of institutions. By going back to the definition of power, Foucault proposes to focus on relations of struggle, conflict, and also on those in which assumptions have been taken for granted. In short, Foucault proposes to look at the "social nexus" (Foucault, 1982a, p. 222) that supports the operation of society. From there, it is expected that an uncovering of power relations, a location of them, their point of application and the methods used for normalisation and for self-producing power could be obtained (Foucault, 1982a).

There are more detailed guidelines for the analysis of power (Foucault, 1977b, 1982a), but it suffices to say here that they aim to provide an account that contemplates the above aspects and questions. Foucault (1977b) also suggests that in the analysis of the modern subject, it is necessary to depart (partially) from the juridical notion of power (that stated by the law) if one wants to understand how power has pervaded individuals. By doing this and in relation to the forms of individualisation that power has generated in society, one should look not only at the juridical forms of power.

Despite the usefulness of power in bringing awareness on how we are made subjects, nevertheless Foucault is cautious about proposing an objective and 'totalising' view of power for analysis. He does not agree with the idea of conceiving society only in terms of struggle between power and resistance to it (Foucault, 1984a). Foucault does not agree entirely either with the idea of counteracting power with resistance or proposing a dialectic process between power-relations and points of resistance as a notion to be followed in the historic analysis of society. In this sense, Foucault carefully distances himself from Marxist and neo-Marxist forms of historicism. Foucault's project seems to follow the line of acting in the present while being 'in there'.

As was said before, power is not only a negative concept as constraining action. Power can be used in a *positive* way (Midgley, 1997a; Darier, 1999). Individuals can still exert their freedom to utilise what is at their disposal to achieve specific ends. Foucault calls attention to this issue when he gives a view on what an intellectual should be in modern times (Foucault, 1980a and 1982b). He suggests that by producing knowledge, an intellectual should bring clarity to its production and acknowledge the presence of power: the function of the modern intellectual is to bring the truth to articulate clarity (Dreyfus and Rabinow, 1982) in relation to the possibilities given by power-relations. Power can be at an intellectual's disposal as an enabler or inhibitor of the acceptance of this knowledge in society.

Parallel to this affirmation about intellectuals, Foucault argues that ***truth should not be positioned outside power***, (Foucault, 1980a, 1982a, 1982b and 1984a). His quest then seems oriented to provide an account on how truth has been linked to power. There is a shift in the power of truth which is a shift in the "the forms of hegemony, social, economic and cultural, within which it (truth) operates at the present time" (Foucault, 1980a, pp. 74-75).

The above statement means that any action (intentional or unintentional) inevitably results in a shift in power. However, action cannot be taken outside power. The dynamics of power at a certain moment should be born in mind in order to intervene in relation to it, either as reinforcing power or resistance to it. Power can be used to foster certain actions that individuals are willing to perform. In this respect, power can be used not only to 'liberate' suppressed knowledge as Flood (1990) has suggested, but to foster the production of certain knowledge that is considered relevant in a situation (Midgley, 1997a). Power can be accepted, and its constraints and possibilities for action used[132].

For Foucault, the use of power accounts also for a quest. With his own understandings of what an author is (Foucault, 1977b, 1980b and 1984a), Foucault has set an example related to recognising modes of subjection and the influence of power on them, in order to start thinking on how to detaching knowledge from power. Also his last works on sexuality also set the scene for what is going to constitute an invitation by Foucault to a *life project* related to the use of power in society (Foucault, 1984a). The use of the notion of power to guide action for a self by not 'shifting outside' him/herself from the influence of power (positive, negative and in-between) constitutes a continuous and strategic path for action. In this path there could be individual and collective actions. The use of power can also enrich the 'strategic' view of the practice of ICTP within the information society and inform the methodological framework so far developed for this practice. This path will be detailed in chapter twelve of this thesis.

In the following section, the main ideas of Foucault's history of sexuality are presented, emphasising the turn made by Foucault from exploring sexuality to exploring the relation of 'one to oneself' which will constitute a ground for Foucault's quest and the foundations for his ethical account. The volumes that comprise this exploration present also a turn in the quest in which Foucault had engaged when he began his own project. This turn will conclude with an invitation for 'selves' to construct their own life project in their interactions with others, bearing in mind the existence of power relations.

[132] Perhaps this notion is close to saying that individuals as practitioners could be 'astute' in developing alternative agendas of action while being seen as doing otherwise (Flood and Romm, 1996b). This notion however applies not only to the oblique use of methods as Flood and Romm have said, but also to accepting constraints of power without trying to change them in the short-term. Instead, they could be used fully regarding the different possibilities for action that power concedes.

11.3 The History of Sexuality

One of the latest manifestations of power according to Foucault, is the emergence of a form called 'bio-power' (Foucault, 1977b; Dreyfus and Rabinow, 1982). This form entails a continuous quest for improving the life of individuals involving the care of the body. Bio-power has emerged accompanied by a set of disciplinary technologies (procedures, drills, techniques) that aim to forge a docile 'body' that may be subjected, used, transformed and improved. A self, according to Foucault, has been pervaded by this and other forms of power to constitute what he/she is. Bio-power exerts "a positive influence on life...[power] endeavours to administer, optimise and multiply it [life], subjecting it to precise controls and comprehensive regulations" (Foucault, 1977b, p. 137, my brackets).

It is in bio-power that Foucault has located the phenomena of sexuality also as a point of encounter between governmentality (guiding the conduct of individuals) and the individualisation of power (targeting people's bodies) (Foucault, 1977b). Hence the interest of Foucault in sexuality as a pivotal point for the analysis of power in modern society. Bio-power embraces the above characteristics of power: it has allowed the generation of different scientific disciplines about the body. It has become a political problem with the emergence of concerns like population control. It has restrained possibilities for action for individuals who now are aware of 'caring about life' (Foucault, 1977b). Bio-power is produced and reproduced in human relations, getting the support of groups (families), experts, and governments.

For Foucault, the deployment of sexuality is an expression of bio-power, one of its technologies (Foucault, 1977b)[133]. One of the main questions that Foucault asks regarding an historical analysis of sexuality is "What paths have brought us to the point where we are 'at fault' with respect to our own sex?" (Foucault, 1977b, p. 9). Foucault's last works present an exploration of the historic conditions that gave rise to the appearance of the phenomenon of sexuality in Western society (Foucault 1977b, 1984b and 1985). As said before, for Foucault, the area of sexuality is one in which power is manifested as connecting two levels of subjectivity: *the level of populations and the level of the individual* (Foucault, 1977b).

[133] For Foucault, sexuality shows the evolution of the techniques of power used during Christianity. Sexuality inherited the features of techniques like confession, in which the truth was deciphered from what individuals confessed, with the help of an expert in the truth. The 'truth' to be discovered about the 'flesh' became the truth about 'the body' in the deployment of sexuality (Foucault, 1977b).

Foucault provides various explanations for the understanding of sexuality as a phenomenon being shaped by the unfolding of historical circumstances. These explanations take different periods of time as the focus of analysis. Foucault departs from an analysis of sexuality through the eighteenth century and goes back to the Greek and Greco-Roman times. In these explanations, a pattern seems to emerge: that of proposing an ethical quest for a self who is immersed in power-relations with others; these relations target individuals and collectives. The explanations about sexuality will now be presented.

11.3.1 The History of sexuality in the eighteenth century

The first situation in history Foucault explores is the emergence of an overall concern in the eighteenth century with the 'body'. Different discourses appear at that time regarding sexuality of the body as an essential concern. Not only those discourses of allowing and forbidding certain practices of sexuality, but also those 'juridical' concerning the science of sexuality and those of morality which prescribe the 'right' and 'wrong' sexual practices of individuals. Sex was said to affect entire populations, and the economies of societies (Foucault, 1977b). Also the discourses of liberation about these impositions seem to be for Foucault part of the power relations whose purpose is not to find a truth about sexuality, but to reproduce it as a set of practices (Foucault, 1977b).

Foucault argues that this 'deployment' of sexuality in society obeys a macro-strategy of preserving the capitalist system. "If sex is so rigorously repressed, this is because it is incompatible with a general and intensive work imperative" (Foucault, 1977b, p. 6). The deployment of sexuality was a *target* for power. As such, it has relied on different structures like the law, a form of confession, and an alliance to preserve the family as the structure in which individuals are controlled (Foucault, 1977b).

Normalisation of subjects through sexuality has occurred in a very uniform way, i.e. by making homogeneous the mechanisms of power in different groups and societies. Foucault feels that the subject is 'obscured' in his/her individuality about sexual behaviour. He argues that above all, the individual is made to disappear as a sexual subject if he/she does not follow the modes of individuality deployed by power: "ultimately thou (subject) shall not exist, except in darkness and secrecy...do not appear if you do not want to disappear. Your existence will be maintained only at the cost of your nullification" (Foucault, 1977b, p. 84). For example, those individuals

who do not exhibit 'normal behaviour' in society (homosexuals, prostitutes) are confined to specific places of encounter with the rest of society and targeted by scientific and moral discourses.

In the above situation of marginalisation of individuals, Foucault then proposes to re-construct an 'analytics' of power to understand how sexuality has been deployed. This analysis should not rely on the codes of moral behaviour regarding sexuality but the 'acts' like discourses, practices, by which the sexual subject was created, maintained and modified. Foucault begins his account by looking at the most local relations of power in those situations in which a discourse or practice about sexuality emerged (Foucault, 1977b). That allows him to appreciate more fully the manifold relationships that come into play in society about sexuality. It also obliges him to pass through apparatuses and institutions, points of resistance and different social groups. In these two ways he is exploring the power of 'individualising' individuals and entire populations. As it was said before, this exploration allows him to identify the form of power called 'bio-power' and its concern with preserving life.

This work about the history of sexuality in the eighteenth century influences Foucault's successive works; it seems to have generated in him a concern with the problem of the 'self' more than with sexuality (Foucault, 1984b, 1985). Why he changed his focus is difficult to say. He provides a hint of what has happened with himself in the second volume of his History of Sexuality (Foucault, 1984b) when he describes his exploration of the history of sexuality in the Greek period: "the journey rejuvenates things, and ages the relationship with oneself" (p. 11). It seems then that it is a matter of the relationship between Foucault and himself that he has experienced and wants to transmit. What one finds in this volume is a description on how sexuality came to influence a concern of a self with oneself for the Greeks, as it will now be presented.

11.3.2 The History of 'Sexuality'[134] in the Greek Times

In this account, Foucault will start this exploration by proposing a change in his focus from sexuality. About this change, he says:

> it seemed appropriate to look for the forms and modalities of the relation to self by which the individual constitutes and recognises himself *qua* subject...I felt obliged to study the games of truth in the relationship of self with self and the forming of oneself as a subject (Foucault, 1984b, p. 6).

The above seems to point out that Foucault will analyse particular types of practices which had influence on a Greek self and in his/her relationship to him/herself. Foucault will look at

> those intentional and voluntary actions by which men not only set themselves rules of conduct (in relation to sexuality), but also seek to transform themselves, to change themselves in their singular being, and to make their life into an *oeuvre* that carries certain aesthetic values and meets certain stylistic criteria (Foucault, 1984b, pp. 10-11, my parenthesis).

In this volume of the history of sexuality (Vol. 2) Foucault (1984b) also provides a framework for analysing the history of different 'ethics' in history as focused on elements that surround the relationship between one and oneself. These elements consider power as essential for a self to exert in the management of his/her relation to oneself. These are:

- The ethical substance. This is the part of one self's behaviour that is concerned with moral conduct. It is the material of the self to be worked over by a self's work in ethics. In history this substance has been related to pleasure and desire (Greek period). It has also been related to fidelity and restraint from pleasure in daily activities (Greco-Roman period).

[134] Foucault would say that sexuality as it is identified in modernity (related to pleasure, deviations, with biological and moral implications) had a different connotation in Greek times. It had to do more with restraining oneself from certain practices and searching for a better relationship with oneself (Foucault, 1984b).

- The mode of subjection. This is defined as how an individual subordinates him/herself to the power exerted in society in order to comply with his/her moral obligations, either by subjection to a 'cosmological order' or a rational rule (Greek period) or by subordinating to a tradition and some group laws (Greco-Roman period).

- The means by which a subject will work on him/herself in order to become an 'ethical subject'. These are practices that aim to *transform* the self (abstinence in Greek times, obeying the law in Greco-Roman times) in relation to the existing set of relations of power.

- The 'Telos'. This involves the kind of being to which a self aspires by behaving in a moral way, the kind of being one should become to comply with a certain mode of being, characteristic of an ethical subject which is immersed in a web of power relations. The Telos seems to be a man in control over himself in his/her[135] life in the Greek cities. It accounts for a man who has a beautiful existence — with others[136] — through purity, wisdom and healing and restraint (in the Greco-Roman period).

In the description of practices, Foucault accounts for the above practices from the point of view of exercise of a certain *power* that an individual has over him/herself. (Foucault, 1984b). By using this power, a Greek self is invited to live a lifestyle based on the full enjoyment of him/herself based on the control of him/herself (Davidson, 1994).

How was power exercised in Greek times? It seems that it demanded self-control over one's desires, respect for authority, and a 'virile' or man-oriented type of moderation. *On the other hand*, power allowed a process of 'continuous knowledge of the truth about oneself' based on the knowledge of oneself (Foucault, 1984b). This opened up the possibility for a self of an 'aesthetics of existence' (Foucault, 1984b) and entailed a life project to develop in the continuous search for the beauty that this life-project would bring along the way, all being made within a particular order of laws and other practices. The life project demanded from a self not to be dominated by its own pleasures, and to elaborate oneself in the "stylisation of an

[135] However, this account seemed to refer only to man. There was a role for the woman in Greek society (Foucault, 1984b).
[136] It implied a married man, responsible for procreation (Foucault, 1985).

activity in the exercise of its power and the practice of its liberty" (Foucault, 1984b, p. 23).

The project that Foucault identifies for a self would evolve through Greco-Roman times, as it will be seen in the next section.

11.3.3 The History of 'Sexuality' in Greco-Roman times

Foucault continues this exploration in his third volume about sexuality and also continues exploring this concern of one with oneself (Foucault, 1985). The emphasis in the relationship between one and oneself had a common point with the previous exploration. As was said before, the elements for the analysis of 'ethical' practices seem to be the same. In this epoch, Foucault identifies a phenomenon of 'care of the self' in sexual practices. The purpose is to establish a relationship between one and oneself in which a subject can exert a certain power (restraint) in relation to the accepted norms in society (sexuality was limited to marriage).

Foucault insists here that despite the presence of power, a self was capable of transcending the impositions in his/her relationship with him/herself and developing a life project. This project was aimed at creating a pure self within the order established. It demanded continuous work on oneself and restraint from things that were not allowed. A self was 'ill' and needed healing. A self was invited to change his/her attitudes to situations, in order to become wiser and to have judgement to face situations in the most appropriate way. A self was invited to eliminate any dependence of him/herself on circumstances, in order to foster more a dependence on him/herself, and by escaping enslavement. A self should become "...a thing one both possesses and has before one's eyes" (Foucault, 1985, p. 65). A self should know him/her self in his potentialities and capabilities *in relation to* the existing arrangements of power.

During Christianity, Foucault argues, the self had to renounce him/herself "because clinging to the self was opposed to God's will" (Foucault, 1982b, p. 362). This made the project of a self dependent on others who had to help him/her to 'decipher' him/herself, and renounce to a certain extent the need to creating a life project based on the relation of one to one's self. And the power of confession appeared, demanding the truth from a self about itself, and undermining the possibilities of a self being created by him/herself as a work of art (Foucault, 1977b, 1982a and

1982b). Nowadays, sexuality appears then as an attempt to react against this expression of power. However, it has become another form of power as individuals are invited to 'liberate' themselves from the idea of the 'sin of the flesh'. But they lack awareness of discovering the 'truth' about themselves by first having to know about their bodies, how to care about them, how to live as 'bodily' individuals in society. This is the form of power of sexuality, targeting individuals and groups.

In this respect, this is how Foucault calls our attention to ethics, as we need to construct new understandings of the relationship between us and our selves, not necessarily mediated by the need to know about us as 'biological', 'political', or 'religious' subjects. However for Foucault, a self still has the possibility of taking again the regaining of the self and the relationship to itself in order to go beyond what history has created for it, bearing in mind the dynamics of power. This will be explained in the following section.

11.4 A Quest for Ethics Coming From Power

What do the above explorations of sexuality tell a self like myself? It seems that the emphasis of Foucault has been on providing an account of the power in a self, but also the possibilities for action for individuals as selves. The account of the subject given by Foucault should not be considered an account for the existence of an ontological subject to be discovered through history (Darier, 1999). In the above accounts, and in the example of the work of Foucault himself, the self has been able to *re-align* itself in relation to the power of individualisation which affects individuals and groups.

For Davidson (1994) what Foucault was intending to do in his work in ethics is to show that at that time one should transform oneself "so that one places oneself in the perspective of the cosmic whole" (Davidson, 1994, p. 121). For Darier (1999), the aim of Foucault in his work in ethics is to show that despite processes of normalisation for a subject, there are other possibilities of resisting them or working *through them* by exerting the degree of freedom available to individuals. There is the possibility of developing oneself as a work of art, putting, moving, adding, and deleting (Foucault, 1984a). Critique of what a self is stems from the chance of "no longer being, doing or thinking what we are, do, or think" (Foucault, 1984a, p. 46).

In his view about the Enlightenment project, Foucault also sees that it is not necessarily by offering resistance to power that one can create and re-create one's own present as a work of art (Foucault, 1984a). The project of the self "should not be confused with absolute emancipation" (Bernhauer and Mahon, 1994, p. 153), nor with discovering a 'true self', as it might just reinforce existing power-relations (Foucault, 1984a). It entails more *shifting* the self-identity according to the historic circumstances in which a self is continuously recreated (Bernhauer and Mahon, 1994) to other possibilities for self-reflection and action. The quest for ethics involves at every moment confronting "what one is thinking and saying with what one is doing, with what one is" (Foucault, 1984c, p. 374)

Instead of finding a universal answer to 'what', the question of ethics becomes for Foucault a question of 'how': how certain assumptions about ethics in society have been taken for granted and influenced what 'ethical subjects' are. For Foucault this question of 'how' means to be able to understand those forms of normalisation that operate at the collective and individual level, and develop new forms of subjectivity, new ways of being subjects in society (Foucault, 1982a and 1984a; Davidson, 1994). Moreover, the definition of any ethical action (by a self or different selves) should reside in the understandings of power; the transformation of a self entails continuous reflection and action, as power transforms and evolves towards new forms of individuation; power needs to be uncovered, and its forms managed.

Although solving the question of ethics might entail first dealing with the relation of one to oneself (how I am constituted as an ethical subject), the nature of the quest is more comprehensive. It is a quest that is developed with others, as power is exerted over individuals and collectives. New forms of subjectivisation or normalisation target individuals and groups in different ways: they need to be continuously uncovered and addressed. In this respect, Foucault does not exclude the possibility of collective action as he is much aware that these could be forms of resistance to the power of individualisation of subjects which come as 'individual choices' or collective reactions against them (Foucault, 1982a). It follows that any shift in the balance of power through action can be made in different ways, either individually or collectively, as power has also individual and collective forms.

The awareness of the different forms of power that intend to 'normalise' individuals means that in developing a critical quest, individuals can find themselves in tension with other people who might have different truths about ethics. The nature of the quest seems to portray it as a quest developed in *tension* with others. This is so due to the characteristics of power in society. Power has been seen as having variety and complexity of forms, which are in continuous struggle. Foucault's history of sexuality of shows that despite the prevalence of 'old' forms of power (appearing through Christianity and the Bourgeoisie), new forms of power (e.g. associated with sexuality) appear to complement, cancel or counteract the former (Foucault, 1977b). Power offers a degree of freedom to individuals in the dynamics between power and resistance (Foucault, 1977b and 1982a; Darier, 1999). Any ethical quest based on an understanding of power will have to be a quest of a self in tension with others. A more detailed account of these tensions in relation to the use of boundaries will be presented in the next chapter.

11.5 Implications for the Moral Quest of Selves in the Information Society

What are the implications for the use of Foucault's project on ethics and power for the information society? To begin with, Foucault seems to invite an individual self or collective self to leave the passiveness about its own ethical identity, and not give up itself up in constructing and re-constructing it. This gives awareness to individuals and groups about the possibility of a life project towards this construction and re-construction. Awareness of this respect also calls for reviewing the practices and actions that have been developed in the realms of ICTP and systems thinking, particularly those which have dealt with ethical issues. Current or new development in both realms could be constraining instead of allowing the emergence of new forms of action in a self.

In particular, and for the practice of ICTP using Critical Systems Thinking, the need to push out the boundaries of intervention by including different concerns should be investigated regarding the consequences that this could have for the potential projects of different selves in creating and re-creating themselves, either individually or collectively. This includes also researchers who should be critical about themselves as subjects of power. In intervention they should ask themselves questions like: what are we seeking to build regarding ethics? How important is the notion of power for us as practitioners interacting with others? Are we reinforcing

power relations? Are we challenging them? Are we allowing our or other selves to develop our (their) own quests? Are we making other people aware of the potential consequences of not considering the existing tensions between power, resistance and freedom?

The above critical view seems to be more specific than that developed by Gregory regarding self-reflection and reflection with others (Gregory, 1992 and 2000). The view on power entails a more contingent reflection of a self in relation to his/her interactions with him/herself and others at a certain time depending on the conditions of power. It entails also a more specific focus on the dynamics between a self and society, as the possibilities for individual and collective action can include not only constraints (imposed by society) but opportunities given by local relations of power. A similar claim has been made by Midgley (1997a) when he prefers to focus inquiry on particular interactions between individuals than on society in general.

For the process of ICTP, the use of power invites us to review some of the elements of this practice in planning. Elements like the purposes stated, the methods and methodology(ies) used and the existing ethical concerns that arise should be reviewed. These elements could contribute to reinforcing certain power relations, which could be constraining the action of a self. On the other hand, reviewing these elements critically could contribute to enabling more possibilities for action for a self in his/her ethical quest in relation to power relations.

From the above, it seems that the invitation to push out boundaries and promoting coexistence in the practice of ICTP like the one we made should be reviewed in the light of reinforcing existing practices of limitations for a self via the exercise of power. In the project at Javeriana, there were some aspects that could be reviewed on the light of the following interpretations[137]. In the following interpretations, I intend to follow the idea that power is not something 'objective' or 'out there', but a notion that allows a comprehensive analysis of relations. These are my own interpretations and they are intended to challenge what we did at Javeriana, also with the purpose of highlighting some considerations to be taken if power is used as a notion for analysis.

[137] I intend to follow the idea that power is not something 'objective' or 'out there' but a notion that allows a comprehensive analysis of relations. These are my own interpretations and they intend to challenge what we did at Javeriana.

At Javeriana, the respect we had for the hierarchy could have contributed to reinforcing their power over non-administrators and their discourse on 'doing good' with the project. Also, the purpose of achieving openness in participation of people in interviews and workshops could be viewed from the perspective of potentially 'uncovering' subjects to normalise them. By identifying and 'including' people and their concerns as 'participants' in plans of action, we could have been shifting their participation in the web of power-relations at Javeriana, and making them subjects of initiatives. People could now be 'available' to take part in the making of different initiatives like the projects of the digital library and new internet-based library services[138] or new ones.

To the above interpretations, critique should have been made in relation to the willingness of people to become the subjects that they did, regarding their purposes and their notion of being 'good subjects'. Some of the questions that should have been asked in relation to what people thought about Javeriana is: what does it mean to be a 'good member' of Javeriana? What kind of constraints and possibilities does this image of a 'good member' entail? In relation to these questions, people could have reflected on their own ethical identities. Some of the people (including researchers) could have developed self-critique. Critical thinking could also have involved the purposes these people had at Javeriana regarding their own lives and how Javeriana was allowing or preventing them from carrying on these plans. Also, problems of co-ordination of efforts between individuals (for example, people from library services and from the digital library project) could have been addressed by developing a notion of 'doing good' in them. This might have needed finding the points in which institutional plans or policies were preventing individuals from finding a better degree of co-ordinated action.

At Javeriana, concerns identified could be also an expression of ethical forms of individuation which should be reviewed on the grounds of promoting forms of ethical behaviour that could contribute to constraint or enable new forms of action by individuals. Concerns with improvement of evaluation about the quality of education and the creation of a culture of improvement (see chapter nine of this thesis, section 9.3.3.6) could have been seen in the light of possibilities of some individuals fostering them. This could have been developed not necessarily by including different groups of people but by fostering individual projects or initiatives of small groups. There

[138] See Appendix 2, section A2.2 of this thesis.

were some people concerned who wanted to do something about improvement. Bearing in mind the existence of power relations, these individuals could have re-defined their initiatives to contemplate support from power at Javeriana (like hierarchical power) as well as some limitations (like the need to address institutional goals).

In relation to the use of information technology at Javeriana, some power relations that aimed to 'normalise' groups of people as members of an educational institution (for example by implementing a registration information system) could have been identified. They could also have been analysed and managed in such a way that in relation to already established plans, new possibilities for action could have been developed. For example, the need to have a more personalised registration system according to the needs of students (see chapter nine of this thesis, section 9.3.3.8) could have been included in the initiative to have a registration system that was 'owned' by the information services section at Javeriana. Action should have been required to explore this possibility and through it perhaps new constraints and possibilities in relation to power could have been identified.

For Colombian society in general, the design of information technology plans could have considered the existence of power relations that seemed to aim at 'normalising' individuals by making them more dependent on the use of information for their jobs or daily lives. Critique could have been developed regarding the potential limitations but also opportunities of having an information-based society. For example, the purpose of providing training in computers and English language to people (Agenda_Conectividad, 2000a) could have seen as an attempt to 'normalise' students. Other activities could have been defined around the use of computers according to purposes defined by students, teachers and other people involved directly in implementation of plans.

For the practice of Critical Systems Thinking (CST), this attempt at Javeriana of opening debate to different concerns which emerged from the way of life of people could have been seen as an interplay of different power-relations, including forms of intervention defined and developed by us as researchers. We (Diego and I) could have reflected on the possibilities of shifting our power as researchers in relation to the forms of power at Javeriana. We could have used our expertise to continue fostering participation. We could have been more critical about our own role, as potentially allowing the institutional hierarchy to be reinforced or challenged

according to our own ethical projects. For myself Javeriana was not only an opportunity to realise other concerns but also to develop myself as a teacher and researcher, i.e. as an ethical subject with particular concerns and taking part in certain domains of interaction. The implications of these could have been explored at that time. Now it is interesting to see what else I could have done for others and myself by being in these two roles. What ethical identities was I following? In what domains was I taking part? What ethical identities did I decide to follow through time at Javeriana?

From the above, it follows that the use of notions of power and ethics developed by Foucault seem to provide an enhanced way of critique for individuals. This critique entails self-reflection about the own ethical concerns and the concerns of others. It provides a starting point for the discussion of how concerns might be addressed in action, bearing in mind possibilities and constraints for action. In the next chapter, a proposal to include this critique in the methodological framework for the practice of ICTP will be made.

11.6 Conclusions

In this chapter, the ideas of Foucault and his quest to understand power and ethics have been presented. These ideas derived fromn Foucault's own lifestyle as based on shifting self-ethical identity and collective ethical identity in relation to the possibilities and constraints of power. Such ideas provide elements for conducting a critical analysis of practice regarding research in ICTP. More importantly, they provide a critical awareness for practitioners in relation to the ethical notions of 'self' which they might be promoting in themselves and others; also in relation to the possibility of developing a life-style in modern society, which is continuously critical of individuals as having ethical concerns. I have to say that I have been transformed by this exploration and now I have questions like:

- Who was I?
- Who do I want to be?
- How should I become different?
- Should I construct or defend my ethical moral identity, regardless of the need to be an ICTP or systems practitioner?

- How should I interact with other people that have ethical concerns different from mine?

Answers to these will reinforce my re-definition of my own quest in life. Regarding this thesis, there are still two questions that deserve attention for the next chapter:

- How can the methodological framework be enriched with the critical self-reflection posed in this chapter?
- What further implications does the connection between power and ethics have for the practice of ICTP?

Chapter 12: Complementing Critical Systems Thinking Practice with Critique on Power-ethics.

> "What are you doing up there God?" asked a man when he realised how bad the world was. "What have you done to bring peace to the world?"
>
> *"I made **you**", a voice replied.*
>
> *A saying from Hermann Rodriguez, S.J*

12.1 Introduction

In the last chapter, the review on power and ethics brought interesting possibilities for critique for a self in its interactions with others. These possibilities consider the context of relations as embedded in power relations. Two questions were formulated at the end of last chapter to guide the development of this chapter. These are:

- How can the methodological framework (so far developed) be enriched with the critical self-reflection about power and ethics?
- What further implications does the connection between power and ethics have for systemic intervention and the practice of ICTP?

To provide answers to these questions, in this chapter I will provide an account of the use of power and ethics to enhance critique in the reflection that a self makes about its ethical concerns. This critique is developed also in interaction with others, as the notion of power defines possibilities of action for individuals and groups; it also defines tensions between different forms of power. In this chapter some of these tensions will be considered as tensions between individual and collective ethical concerns.

In order to enrich the methodological framework so far developed in this thesis, the work of Midgley on boundary critique and systemic intervention (Midgley, 1997a and 2000) will be revisited. The notion of ethics coming from power will be included to complement this work. The distinction of concerns as boundaries is revisited and enriched with critique on self-reflection coming from power and ethics. The

introduction of critique will result in implications for the practice of ICTP and for future possibilities of research.

12.2 Systemic Intervention: Revisiting Some Concepts.

As was said in chapter seven of this thesis, in the development of a theory of systemic intervention, Midgley (1989, 1990, 1997a and 2000) started with the idea that simple choice of methodologies is not enough to address the complexity of different situations. Midgley distinguishes between a method and a methodology. A *method* is a sequence of techniques operated in a sequence or sometimes in an iterative way to achieve a given purpose. A *methodology* is a set of theoretical principles that guide any intervention by justifying the use of certain methods (Midgley, 2000). To deal with the complexity of local situations, Midgley prefers to think in terms of the design of *methods* (sequence of techniques) rather than in terms of a methodological choice. For Midgley, understanding a problem situation involves doing it in terms of a series of interrelated research questions, which can be addressed by using a different method or part of a method.

This distinction will also constitute the ground for promoting systemic intervention at different levels as it is presented by Midgley. I will outline this in the next section.

12.2.1 Knowledge generation and learning in systemic intervention

Building on the works of Churchman (1970, 1979) and Ulrich (1983) in order to use the notion of boundary critique fully, Midgley (2000) advocates the use of boundaries in context. In a context there could be different types of relationships between researchers and participants in a problem situation. By saying that, Midgley advocates a pluralist notion of different types of knowledge that inform practice in the form of theories or methods.

In systemic intervention, Midgley argues that is possible to see how different theories, approaches and methodologies that have been used in the dialogue in systems thinking define — in practice — *certain boundaries that influence action* (including judgement as action) (Midgley, 2000). For Midgley, there is a duality between subjects generating knowledge and objects of knowledge generated that can be overcome if one see the process of generating knowledge as a *process* of

boundary judgements (Midgley, 2000). Knowledge is seen by Midgley as any understanding taking the form of language or imagery. From the above, it follows that the process of boundary judgements generates the *content* of knowledge as subjects or objects.

What Midgley is also implying by the above is that it is possible to see that any theory or methodology generates two types of distinctions: one of first order (from a subject distinguishing outwards) and another of second order (about the subject). These distinctions generate different boundaries about what is to be considered as knowledge about subjects and objects (Midgley, 2000).

From this onwards, Midgley (1997a and 2000) has focused his work on connecting the use of boundary judgements in a critical way with practice, and supporting these ideas also in theory and in a methodology that encourages continuous *learning*. In relation to knowledge generation, for Midgley (2000) in systemic intervention there is learning at two levels: about methods (which can be used through one's own methodology) and about one's own methodology (which is subject to development over time in relation to learning from other methodologies).

Learning is also complemented by the dynamics between theory and practice. For example, new knowledge (a new theory or approach) allows subjects (practitioners and participants) to widen the scope of their own boundaries. Theory is needed to "develop understandings of *why* methods sometimes work and sometimes do not, so that people can learn more effectively from their mistakes" (Midgley, 2000, p. 111). At the same time, practice is needed to provide application and refinement of the theory (theories) or underpinnings that inspire a methodology and methods.

From the above it appears that *knowledge* (in the form of objects of knowledge) is a *central concept* in Midgley's approach for systemic intervention. Knowledge (in the form of objects) is generated by subjects who at the same time generate knowledge about themselves (Midgley, 2000). Any type of knowledge generates boundaries, which can be critically reviewed. Midgley (2000) advocates, then, the existence of multiple understandings of a situation coming from different knowledge-generating systems which in terms of boundaries mean that there are different boundaries of inclusion of subjects and objects of knowledge (Midgley, 2000).

Moreover, agents or subjects continuously generate knowledge in a process of learning, as will be seen in the next section.

12.2.2 The notion of an agent generating knowledge in systemic intervention

Parallel to the above understanding of generation of knowledge as based on boundary judgements, Midgley (1997a and, 2000) introduces the notion of an *agent.* An agent is either a single human being, or an identifiable group or human beings in interaction (e.g. family, team, organisation, etc.) which have at least one purpose ascribed to it. This agent is distinguished in a *knowledge generating system,* which generates knowledge by its own activity. The agent and the knowledge generating system are interdependent, as the knowledge in the form of distinctions (first order) contains also a specification of who an agent is (second order). Moreover, distinctions about who an agent is (are) specify also aspects of the environment of an agent that contribute to his/her knowledge producing capabilities.

In Midgley's distinction of an agent, there is a concern with individuals or groups as subjects. This seems to follow Gregory's (1992) idea that in order to achieve a level of complementarism in the use of methods it is possible to focus on individual interactions. Midgley however uses the term 'agent' to account for individuals and also for groups, in order to avoid the tension between theories that privilege individual action at the expense of a collective one or vice-versa (Midgley, 2000).

For Midgley, human beings could be considered agents. However, when a second order distinction is made (that of a subject generating knowledge), the boundaries of what or who the agent is (are) can change. This is the case for example when one includes non-sentient beings as within the boundary of the agent generating knowledge (Midgley, 2000). Then, the notion of an agent can include not only humans.

With the distinctions of knowledge and agents Midgley complements his previous understanding of systemic intervention. One of his main concerns about knowledge and agents or subjects (which was mentioned in chapter seven of this thesis and can be seen in Midgley (1997a[139])) is more strongly connected now to the use of boundary critique. Moreover, Midgley seems to focus on the possibility of using

[139] It should be remembered now that Midgley (1997a) included critique of power-knowledge formations as being influenced by and influencing the identity of subjects.

boundaries to inquiry more about those *subjects* who generate knowledge. In systemic intervention, these subjects (individual and group) can inquire about themselves. This relationship between knowledge and subjects will constitute a possibility to be developed further in this chapter by including the notion of power and ethics when enhancing critique about subjects concerned with ethics[140].

12.3 Towards a Relationship between Ethics, Power and Knowledge

In chapter eleven of this thesis, ethics was seen as constituted in power relations that define identity for the subjects. Ethics also offered an alternative for action for subjects: the possibility of shifting power to new relations or using existing ones to develop a re-creation of an ethical self. In his work about sexuality, Foucault concludes explicitly that ethics is strongly connected to the *production of knowledge and the existence of power relations.*

> In the case of sexuality, it was the development of a moral attitude that I wanted to isolate, but I tried to reconstruct it through the play that it engaged in with political structures (essentially in the relation between self-control and domination of others) and with the modalities of knowledge (self-knowledge and knowledge of different areas of activity) (Foucault, 1984d, p. 387, original parenthesis).

Hence, in Foucault's work there is a strong relationship between knowledge, power and ethics. As has been presented before in this chapter and in chapter seven of this thesis, there are possibilities for developing critique of knowledge by using systemic boundaries (Midgley, 1997a). There is also the possibility of being critical about one's own concerns if one understands these concerns as influencing and being influenced by power-relations. Why not use boundary critique to promote a shift in power relations or use it to account for new possibilities for the moral identity of selves?

If the notion of ethics is included in systemic intervention, Midgley's description of agents and knowledge could be complemented with critique on the ethics of agents taking part in a process of knowledge generation. Critique should embrace not only the concerns that lead an agent to take part in a process of knowledge generation,

[140] This 'trilogy' was first proposed by Dávila (1993).

but also the results of this process, since an agent is immersed in power relations which shape and are shaped by such process.

For the practice of ICTP, it has been argued in chapter seven of this thesis that there is the need to enrich critique about methodology, practitioners and the context in which ICTP is conducted. The notion of power-ethics seems to embrace all of these elements. First, it provides an account of the context of intervention as a context of power-relations, which is changing continuously. By doing so, it also includes practitioners as 'selves' immersed in such relations and fosters their awareness of the modes of normalisations that they have been subjected to. About the methodology, critique could be conducted regarding the possibilities that methodologies constrain or open according to the power relations that they could reinforce, resist or manage.

Moreover, it has been argued throughout this thesis that there is the need to open debate about the different concerns of people living in the 'information society'. A strategic view of ICTP should allow people to raise their own concerns and to manage them. In practice, such opening of the process has resulted in identifying the need to manage different ethical concerns of interaction. The possibility of considering subjects as individuals or groups gives practitioners critical grounds to address in practice concerns which emerged by articulating them in the interactions between selves and others. *Concerns no longer exist isolated from interactions, they should be considered as being lived in power-relations with others.*

12.3.1 Two uses for power

Given the above possibilities, it is necessary then to consider a two-fold use of the notion of power to enrich existing critique in ICTP (so far supported by the ideas of using autopoiesis and boundary critique). This notion should be called a notion of power-ethics and should be used in two ways:

- First, as a notion that allows critique on forms of knowledge and identity of an **individual** self in relation to him/herself (ethics of a self). This is supported by the dynamics between first and second order distinctions made by Midgley (2000)[141]. Based on his/her own identified concerns, a self can reflect on

[141] Midgley and Ochoa-Arias (1999) have also advocated these distinctions in their understanding of a theory of systemic intervention.

him/herself as a subject who has been created and has maintained a moral identity. From there, a self can develop his/her own work of privileging certain *boundaries* for action in which he/she develops his/her own *moral* identity. This process unfolds as the work of oneself becomes a work of art, e.g. by putting, adding, modifying (Foucault, 1984a).

- Second, as a notion that allows critique on forms of knowledge and the ethical identity of a **collective** self. This self is a self who is reflecting with others. In this type of critique, ethics can be seen as the ethics of improvement in relation to others (including oneself and future generations) that has been followed by Churchman (1979), Ulrich (1983) and lately by Midgley (1996, 1997a and 2000) and Midgley and Ochoa-Arias (1999)[142]. Here there also seems to be room to promote an ethics based on communities of practice (MacIntyre, 1985). The claim of Maturana (1988) and Maturana and Varela (1992) to promote co-existence with others seems also to follow an invitation to develop new domains of action in which the boundaries are enlarged to account for co-ordinated action[143].

These two notions seem to be interdependent, as an individual self who is aware of power is also aware that this is produced and re-produced in his/her relations with others as interactions, targeting individuals and groups.

By proposing the above two notions, it seems that so far the practical use of boundary critique has been used mostly to fit into the second notion. In my experience at Javeriana (described in previous chapters), a combination between autopoiesis and boundary critique was made possible in practice, perhaps due to the focus that both theories had on promoting interaction with others and developed concerns shared by more than one individual. The first notion has only been identified in theoretical terms. For someone like myself, the purpose of developing forms of co-existence seems to have been prioritised (at the beginning) in the intervention at Javeriana at the expense of my own concerns.

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[142] About Ochoa-Arias, one could say that although he accepts the need to be critical about power in systemic interventions, he seems to be more committed to developing a notion of ethics in relation to communities of practice. He seems to support the argument of MacIntyre (1981) of proposing a narrative for a self, which could provide unity for its own moral quest. This narrative entails reconstructing the history of a self with others (Ochoa-Arias, 2001).

[143] Although Foucault (1977b) is suspicious of an explanation for coexistence that comes from the domain of biology (see next footnote).

In terms of power, the two notions could account for two different forms of power that can be analysed. As was said before, for Foucault power targets subjects individually or collectively. The phenomena of sexuality and then ethics are those in which the two forms of power converge around an individual as member of collectives (Foucault, 1977b). Hence, Foucault's notion of power-ethics promotes action at different levels (individual, collective). This action should be considered as having developed in relation to the constraints or facilities posed by power relations. For practitioners who develop action towards improvement, it seems necessary to inquire about the impact of their choices (individually or as members or collectively) in the *forms of power they are reinforcing, counteracting or creating in themselves and/or with others.*

To enrich the methodological framework for ICTP practice from this two-fold notion of power and ethics, some elements will be introduced. These elements mainly extend the nature of boundary critique in order to account for power-ethics in systemic intervention. Using the ideas of power-ethics, the identification of concerns and the claim for co-existence coming from autopoiesis are revisited. It is not the intention of this thesis either to modify the ideas on autopoiesis to account for power, but to complement them[144].

12.3.2 Personal boundary critique: concerns as 'bounded' by power-relations regarding ethics.

The idea of Midgley (1997a) that knowledge-power formations privilege certain boundaries that define the knowledge to be considered relevant is followed and extended further. In the methodological framework used to inquire about a process of ICTP emphasis has been made on the identification of concerns which have emerged from the way of living of people. A concern can be seen as 'bounded' by power-ethics formations that privilege certain actions at the individual and collective level. *A concern is embedded in power-relations that constitute an ethical subject.* To be critical about a concern is to consider the boundaries that are identified in

[144] I differ in this respect from the work of Velez (1999) who has developed a view of autopoiesis and power. He claims that some of the ideas of autopoiesis should be substantially modified in order to include the elements of power. I intend, on the contrary, to provide a deeper understanding of them by complementing the claim for co-existence of Maturana (1988) and Maturana and Varela (1992) with Foucault's ideas of power. Although I am aware that Foucault was suspicious of theories coming from the domain of biology as attempts at 'normalising' knowledge about living beings (Foucault, 1977b), in this respect I am also respecting Maturana and Varela's ideas and providing a space for these ideas to co-exist (in principle) with others.

relation to a concern regarding the elements that are privileged and these that are marginalised.

In terms of concerns distinguished by a self that has been constituted in the dynamics of power-relations, the relationship between concerns, self-identity and boundaries can be seen in the following figure:

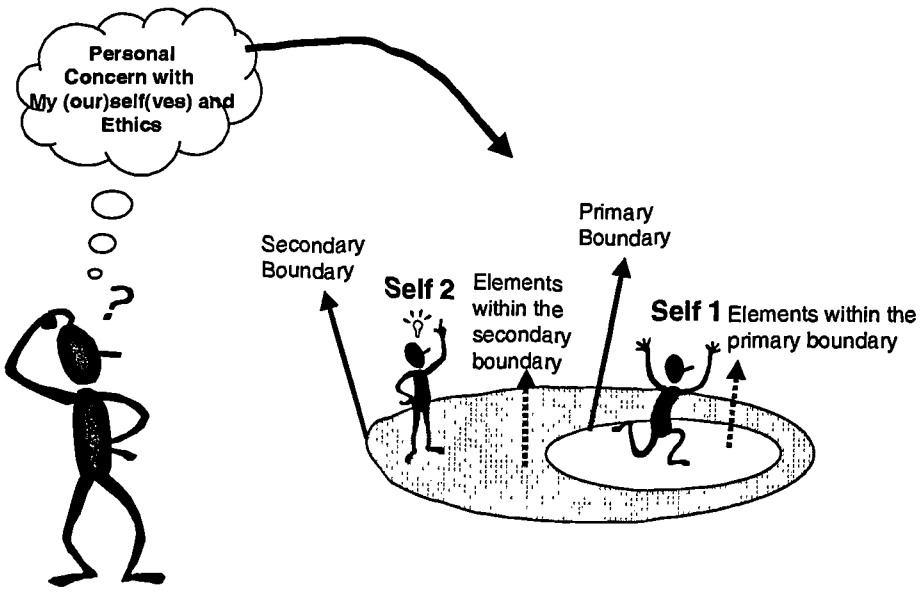

Figure 12.1. Personal concerns which emerged as boundaries, which are defined through power-relations.

In the above figure, different notions of a self as an ethical subject can emerge, derived from the identification of personal and ethical concerns. These notions can be associated with forms of ethical identity or modes of constituting ethical subjects[145]. These notions are the result of the processes of normalisation of subjects (individuals or groups) which constrain or enable their space of possibilities of action. These possibilities for action include the production of knowledge.

[145] Here I am assuming that there are different modes that constitute an ethical subject. I do it in the same way that Foucault presents the existence of different forms of power targeting a subject as an individual or as a group (Foucault, 1977b). Foucault has also considered that a subject is immersed in a web of power relations that embed the context of his/her interactions with others (Foucault, 1982a). I also claim that the existence of different modes that constitute a subject (individual, group) does it in the same way as Maturana acknowledges that human beings as autopoietic systems take part in different domains of conversation. The flow of interactions of individuals in different groups cannot be predicted (Maturana, 1988; Maturana and Varela, 1992). What I am proposing is to account for the different interactions in which individuals take part with others and by which they are being influenced as the context of critique for a self and others in the practice of processes like ICTP.

Boundaries can be identified around those concerns privileged and marginalised in the definition of ethical subjects. The definition of ethical subjects can be individual or collective.

Two possibilities for action should be considered in the process of identification of boundaries to the ethical identities of subjects. First, the identification of ethical concerns can be a very personal matter and it can continue being such. As suggested by Foucault, the project of creation and re-creation of the self might constitute a very personal effort (Foucault, 1984d). An individual self might not find any other 'selves' with whom a concern can be lived. In this case a self will find that his/her own concern(s) need to be developed 'carefully' with others.

Second, a self might find others to whom this concern can be addressed in common action. This reflection brings boundaries around issues and people that will be addressed as a result of common efforts between individuals. Also, individuals can widen their knowledge and the scope of their views if they expose their views to others (Gregory, 1992). Also they acquire the right to express themselves and to be listened to (Gregory, 1992). Any boundary adopted will be the result of the interaction between different selves.

How do these boundaries emerge? *In both of the above possibilities, it can be said that any process of self-reflection (individual, group) is developed in the interactions that a self has with others.* These interactions are part of the individual 'flowing' through conversations with others (Maturana, 1988). Some of these interactions can be pre-planned in order to account for the distinction of boundaries about a self. Following Maturana, some of these interactions (involving emotions and actions in language) just 'happen' and could 'trigger' a self-reflection on his/her own boundaries. Because of this unpredictability of interactions, critique should be developed during interaction and after it as a way of ensuring that boundaries are identified.

Hence, it is in interaction with others (and this will include interacting with oneself[146]) that a self has the possibility of unveiling him/herself as an ethical subject. However, the notion of power brings into discussion not only what happens with an individual

[146] According to Gregory (1992), self-reflection intends to show an individual self, aspects of him/herself that have been undermined in his/her relationship with the world. Interacting with oneself entails shifting

self but also with those others with whom an individual self is interacting (either in spaces of self-reflection or not). *What about other people? What happens with different ethical concerns?* It is here also that the notion of power offers important possibilities for action. From power-ethics, critique can be also conducted to account for what happens in interaction between a self and others.

To present the features of such critique about interaction, there are two aspects to consider. First, in interaction the mode of questioning about a self can be enriched with a type of inquiry derived from Foucault's understanding of ethics (Foucault, 1984a). Second, the interactions between different selves can be seen as featuring continuous tensions between power relations. These two aspects will be developed in the next two sections of this chapter (sections 12.3.3 and 12.3.4).

12.3.3 Critique on concerns of a self (individual, collective).

This aspect intends to provide a self (individual or collective) with elements for critique of itself which would result in the identification of boundaries that constitute its ethical identity. Critique could depart from identification of concerns, as these concerns could bring issues related to ethical identity; individuals could aim to 'be good' or 'do good' and this could be a distinction of why they are concerned with something. To those concerns distinguished in direct interaction with others or with oneself, either as a result of a planned intervention or as a willingness to develop a moral quest, a self should ask him/herself questions like:

- Where does this concern come from?
- How is it related to ethical issues?
- What kind of ethical subject(s) does this concern make me (us) think of?[147]

At this point and after developing a notion of a self as an ethical subject, it might be worth refering to the categories of analysis that Foucault (1984a) proposes to account for the further constitution of different ethical subjects through history. These categories have been presented in chapter eleven of this thesis. They bring some questions to help a self discern its own emergence (by identifying concerns) as an ethical subject:

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those relationships with oneself that have been shaped through power. For Foucault, this should be done, but not to the point of 'finding a true self' as can be suggested by humanists (Foucault, 1984a).

- **Ethical substance.** At present, what is the part of my behaviour towards myself that constitutes a matter of ethical concern? Is an attitude, a struggle, series of practices, a combination of roles? What is the source of such ethical concern?

- **Mode(s) of subjection.** What is the mode in which I (we) as a self decide to follow an ethical concern? To whom or to what am I (are we) conceding authority regarding ethics? Is it a tradition, or a certain religion, a relationship with some other selves, or is belonging to a certain group that makes a self subject itself to ethical concern?

- **Practices.** What practices do I (we) perform in order to become an ethical subject of the kind needed to address certain concerns and be subjected? What are the guarantees that I am (we are) transforming myself towards being an ethical subject? How do I (we) monitor myself (ourselves) regarding my (our) own ethical practice(s)?

- **Telos.** What type of ethical subject do I (do we) want to be with the above? What is the mode of being that I am (we are) adopting when I address this ethical concern?

The above questions in each category are guidelines for inquiry. They should be addressed in a way that makes sense for those individuals or groups of people who are taking part in a context of intervention. In the case of groups, this inquiry could apply to a group of people[148] who share a concern and want to do something about this concern[149]. They are guidelines more than prescriptions for action.

With the above identification of ethical subjects, one can then proceed to identify the boundaries that these 'subjects' are privileging in action (including reflection as an action) and what boundaries they want to privilege. There could be various 'subjects' coming from a self, whose boundaries it is necessary to identify.

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[147] I am thinking of uncovering various ethical subjects in an individual. This might also lead to distinguishing the different domains of interaction in which an individual is immersed. It is not my purpose to unify these 'subjects', but to account for their existence and for the dynamics between them.

[148] In this case, the questions should be formulated in the mode of 'we' as ethical subjects. A subject could be considered an individual or a group, according to Midgley (1997a and 2000).

[149] I am not considering here that such a group is only a community of practice (MacIntyre, 1981) or constitutes a social domain (Maturana, 1992). I extend my consideration to account for different groups

12.3.3.1 The use of self-reflection

The above questions can help raise awareness for a self as an individual or collective on issues that need attention if a self is willing to develop critique about its own ethical concerns. For a practitioner as a self, any method that allows it to recognise its own ethical concerns should be useful[150]. This in conjunction with the questions posed should provide space for a self to uncover it as an ethical subject. In this process, interaction with others could help to reveal different views about concerns raised by a subject as an individual (Gregory, 1992). As it will be seen later in this chapter, this interaction also needs to be subjected to critique.

For a group of individual selves, questioning should result in possibilities of challenging existing assumptions about their ethics. These possibilities could arise from identifying differences regarding concerns, elements that are included within ethical identities identified, and constraints and possibilities for exploring potential actions to develop the shared concern.

In the process of unveiling different issues that should be considered by a self (individual, collective) in relation to its own ethical development, a self could get the help of others in order to clarify its issues of concern. Systems approaches like Critical Systems Heuristics (CSH) (Ulrich, 1983) might help in clarifying different views about a concern that will be lived as *a system of concern* and to challenge those boundaries that are accepted by a self about its ethics.

Also, different systems approaches might help to envision the desired ethical identity(ies) that a self desires to promote. If a self is a construction with itself, (with different ethical identities) it might be possible to design a desired self. Approaches that foster design like Interactive Planning (Ackoff, 1981) and Soft Systems Methodology (SSM) (Checkland, 1981) could support reflection and definition of agendas for action. There might also be other approaches and methods suitable to foster reflection at the level of a group about modes that constitute a group as an ethical subject as such. There is an interesting possibility for further research about approaches that could foster ethical reflection in selves as individuals and groups,

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of individuals who want (in principle) to do something about a concern. I intend to include people within an organisation, people who belong to different organisations, friends, colleagues, etc.

[150] I cannot suggest any thing other than my own experience to this respect. I have had the opportunity to establish a conversation with myself through psychoanalysis and religious experiences. In those, the

considering elements that need to be privileged and others that need to be marginalised from the mainstream of action by a self.

The result of critique of concerns should derive in certain assumptions being brought to discussion via self-reflection with alternative possibilities that challenge them (Gregory, 1992). Around these concerns, assumptions and possibilities, boundary critique can be developed.

12.3.3.2 Boundary critique of concerns

From the above elements that are related to the ethical identify developed by a self, boundary identification can help to solve questions regarding inclusion and marginalisations in a self as being constituted by different modes of being and acting ethically. Marginal elements could correspond to substances, modes of subjection, practices or Telos left out of action up to now. From the above questions on ethics, other questions related to boundaries for a self could be developed. These are:

- In terms of issues and people, which boundaries can be seen as privileged within the modes of ethical subjection that I have identified?
- Regarding ethics, which elements are privileged and which marginalised within different boundaries identified? Any substance, any mode of subjection, practice(s) or Telos?

Between issues, people and elements of ethics there could be relationships that should be uncovered in such a way that elements from the above questioning are related and concerns about them can constitute a whole system of inquiry (Midgley, 1997a). Also, there could be differences between elements identified that seem necessary to recognise. A further critique on these differences as tensions will be developed later in this chapter.

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help of others has been useful, a kind of help which I have to thank for being sincere and serious at the time I needed it.

12.3.3.3 The 'ought mode' of ethical issues

During the inquiry on ethical identities, the above questions (sections 12.3.3.1 and 12.3.3.2) can be formulated also in the 'ought' mode, in relation to the modes of ethical development that want to be developed (re-developed) by a self. Questions should be directed at identifying the desired mode(s) of ethical development with which a self wants to deal. These questions could also be formulated by a group of 'selves' who want to explore the boundaries of their identities regarding the influence of power (Midgley, 1997a). The 'ought' mode should help in identifying these boundaries that selves want to adopt.

Nevertheless, at this point of reflection (with boundaries identified), there is the possibility (as occurred at Javeriana) of encountering again different views and issues when addressing concerns in action. What is one to do about the existence of continuous conflicts regarding different views or ethical concerns about a situation? It has been argued that the use of boundary critique does not guarantee that in a given problem situation, conflicts or situations like coercion will disappear (Midgley, 1997a). To provide a more comprehensive answer to the above question, in the next sections an alternative view of the interaction between individuals is presented, bearing in mind the existence of different *boundaries embedded in power relations.*

12.3.4 Critique on power-relations

As was argued in the previous chapter of this thesis, the notion of power offers interesting possibilities of enhancing critique in systems thinking when individuals raise different ethical concerns in interaction. To define how a critique on power-relations should complement the methodological framework so far developed, it is important to mention two issues. First, it is important to say that the notion of power developed by Foucault is a *relational one*[151]. It establishes a set of relations between people, characterised by imbalances (Dreyfus and Rabinow, 1982; Foucault, 1982a). There are asymmetries, which will not disappear by having identified modes of ethical subjection. Reflection on issues of power can only give people more scope to judge what they are (Midgley, 1997a). If individuals are going to live different

[151] A relational notion of power was also stated in chapter three of this thesis when reviewing Gidden's Structuration Theory (Giddens, 1979, 1984 and 1990). There, however, the notion was not directly related to ethics.

concerns in action, it will have to be taken into account that interactions are embedded in power-relations[152].

Second, the nature of interactions (even those between an individual and him/herself) should be considered as dynamic, in order to account for the changes in power-relations (which involves the continuous struggle between reinforcement of and resistance to power). Critique should account for the continuous engagement of individuals in different domains of interactions (Maturana, 1988)[153] and for the evolving nature of boundary critique, as new understandings of situations unfold (Midgley, 2000). Moreover, an understanding of interactions should consider the tensions that emerge when individuals have different agendas for action and when using power as an analytical tool allows one to identify emerging tensions between individuals (Flood, 1990; Gregory, 1992; Flood and Romm, 1996; Vega-Romero, 1999).

Hence, when identifying different concerns as boundaries (including one's own concerns), a self (it could be an ICTP practitioner or just a self who is concerned with certain ethical issues) will have to deal with the power tensions between different boundaries. He/she will also have to deal with the dynamics of interactions. He/she might have to provide an account of how power-relations have influenced the setting up of boundaries regarding who is a subject (Foucault, 1982a).

It is necessary to provide an account of who a subject is (are) as the product of power relations. Such an account includes locating power relations, their applications, methods used (Foucault, 1982a) as well as their influence across institutions (Foucault, 1977b; Dreyfus and Rabinow, 1982). A point of departure suggested by Foucault is to look at those practices of 'individualisation' of subjects as well as those of resistance to individualisation. Such an account will have to start from that which seems 'normal' in the ethical behaviour of a self, and provide an explanation or account of why such practices of 'normalisation' have produced a shared 'malaise' or content which gave rise to the investigation[154]. The account

[152] This also includes the interactions between individuals that have been considered a 'subject' as a group. These interactions will shape and will be shaped by individuals in any case. It is necessary to account for what happens through these interactions.

[153] In this engagement it will be possible also to encounter contradictions that take place in an individual self. Maturana (1988) regards these as contradictions in the emotioning of an individual as he/she is immersed in domains of interactions that have different emotions (mutual acceptance and others).

[154] Foucault (1982a) suggests that when one analyses certain power relations one should bear in mind the following aspects: 1. systems of differentiations (those which permit one to act upon the actions of others). 2. Types of objectives pursued by those who act upon the actions of others. 3. Means of

should also contain some of the possibilities that have escaped from normalisation, as a prelude to the possibilities of shifting the dynamics of power-relations.

In the above issue, any method that could support the work of a self towards this uncovering of power relations in which it is immersed should be used[155]. The purpose is to provide challenging descriptions of the situation of a self, and bring to light some possibilities for action[156]. Also, Foucault's work offers different possibilities for analysing the dynamics of power and providing alternatives views for the emergence of ethical concerns, which are raised by selves.

Once an account of the constitution of a self as an ethical subject is made, the next issue to think of is how this self can deal with different boundaries that seem to influence ethical identity and exist in a context of power relations. A self will find them in its attempt to construct and re-construct its ethical identity. What is to be done with its own ethical concerns and boundaries identified in a context of power?

Moreover, a self who is concerned with the existence of power relations will also have to bear in mind that when identifying systems boundaries to foster critique, these boundaries are and will be in *power-tensions* with each other in social design. These should include an individual self as being constituted in tensions of forms of individual power. An account of power tensions will be presented in the next section.

12.3.4.1 Managing power tensions

Foucault's ideas on ethics bring the existence of different ethical discourses that are immersed in power relations. These discourses seem to be 'at war' with each other, each one claiming to have achieved the truth (Foucault, 1984a). From Foucault's history of sexuality one can see how different power forms have been developed in a process of continuous cancellation, reinforcement or further development of each other (Foucault, 1977b), some of them targeting specifically individuals, others

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bringing into operation power relations (control, surveillance, economic disparities, threats of arms, etc). 4. Forms of institutionalisation (legal structures, predispositions, customs, etc). 5. Degrees of rationalisation (plans conducted in relation to the effectiveness achieved, or the certainty of results, or the relationship between cost and resistance).

[155] This is similar to Gregory's account of providing an explanation of how issues affecting a self have emerged historically (Gregory, 1992). However, the focus here is in the constitution of a self as a subject concerned with ethics (as the product of power relations) more than in the development of the elements of the context in which such a self is immersed.

[156] Gregory is (1992 and 2000) is also aware of the need of providing challenging views about a situation in order to foster debate about how to improve it through action.

targeting populations (Foucault, 1977b). The idea of power brings dynamism to relations, a dynamism which, does not seem to be part of a harmonic development strategy for these relations.

Vega-Romero (1999) takes further the existence of tensions between individuals and groups when discerning what to do about their situation. Based on the ideas of Foucault (1980a and 1982a), Vega-Romero has established an account on how the problem of health management in Colombia can be seen (and managed) as a continuous tension between different power forces producing knowledge about health and influencing the way individuals are being treated.

Vega-Romero uses Foucault's notion of power to argue that individuals are in continuous struggle with the above power forces. These forces strive to *subjugate individuals* and constrain their possibilities for action. Relating the notion of power to Critical Systems Thinking, Vega-Romero argues that the notion of power-knowledge should help in the development of boundary critique about health management. Vega-Romero extends further the work of Midgley (1992, 1997a and 2000) on boundary critique[157]. Boundaries are deployed by different power-forces, so *boundaries are in tension with each other, so any action towards improvement resulting from boundary critique should operate within power relations.* In these tensions it is not possible to use rational argumentation to solve any conflicts between boundaries[158]. *There is the need to recognise this tension between boundaries and to decide if action is to be taken.*

For Vega-Romero (1999), in an inquiry informed by the use of the notion of power, boundary critique should not be directed at promoting the definition of universal premises in the form of knowledge or universal practices of subjection. The use of boundary critique should not then be directed at providing universal prescriptions, but rather to recognise different tensions between boundaries identified. Based on this consideration, action should be decided more on a local basis than on the need to make universally acceptable judgements (Vega-Romero, 1999; Midgley, 2000).
How then to decide? For Vega-Romero (1999), this abandonment of the search for universal knowledge involves also recognising the individuality and autonomy of

[157] Vega-Romero (1999) also reinterprets Critical Systems Heuristics (CSH) to provide a more local form of knowledge generation in interventions. This form is imbued within Foucault's notion of power.
[158] This contrasts with the possibility given by Gregory (1992) when dealing with different views in critical appreciation. Foucault (1984d) says that arguments in tension are aiming to deny each other as a way of achieving supremacy in their claim for the truth.

individual 'subjects'[159]; they also can decide what is right and wrong for themselves. Vega-Romero has seen that regarding power-knowledge and boundary critique, three main processes should be conducted to develop improvement (Vega-Romero, 1999):

1. A process of reverse unfolding[160], in which an historical inquiry is made to provide understandings of how knowledge about subjects can be seen from different views, in order to account for the process of how these subjects have become subjects of knowledge and how the 'truth' about knowledge is seen from the perspective of 'the conflicting' subjects.

2. A process of folding (bending or bending back) in which subjects are encouraged to resist the effects of subjection (individuation) of power and develop their own ethical and political attitude (ethics means choosing what is good/bad for an individual subject). Folding entails a process of self-formation (self-regulation) and adopting perspectives of action to promote new forms of knowledge and identity[161].

3. A process of unfolding (revised) in which a self and others are encouraged to develop political and ethical action *with others.* This latter ethical action will result from recognising differences and tensions between different selves (subjects), and developing action aimed to reinforce or resist existing practices of knowledge and subjugation. Processes are iterative and continuous and they have complex connections between them[162].

The steps that Vega-Romero has proposed involve self-reflection (individual or collective) and reflection with others as steps previous to the definition of action. This

[159] Vega-Romero (1999) does not agree entirely with Midgley's (1997) notion of subject as embracing individuals or groups. The relationships between an individual subject and him/herself should be part of the inquiry of boundary critique.

[160] In the realm of systems thinking, unfolding stands for a principle that leads to the generalisation of knowledge. Unfolding considers that knowledge needs to be evaluated with respect to the true concerns of all stakeholders involved in a situation (Churchman, 1979). Hence, different groups of stakeholders are included in a process and decisions consider knowledge produced by this inclusion as the foundation for any social design. Vega-Romero (1999) uses the principle of unfolding in a reverse order. Instead of producing a general knowledge about health that could be accepted by different groups of stakeholders, he fosters the exploration of diverse types of knowledge among people with the aim of recognising a existing diversity within general and accepted forms.

[161] Although Vega-Romero (1999) also encourages subjects to develop their own ethical commitment, he relates it more to commitment to others and to a specific area of knowledge (health). Ethics as a way of developing a subject through power relations might be limited by Vega-Romero's attempt to define a subject which recreates him/herself within an existing domain of knowledge only, that of health.

[162] It appears that the process of self-formation that Vega-Romero (1999) proposes considers that individuals are not in contradiction with themselves when they develop action. I would suggest that the possibility of finding inner tensions in individuals should be considered when managing power relations.

definition of action is now characterised by engagement in *relation to power.* In Vega-Romero's account, action demands first uncovering existing power-relations that might enable or constrain possibilities for action for selves. After this, action should be developed.

As a product of power tensions between boundary judgements and of the resulting action defined by the use of boundary critique, one can infer that the dynamics of power in a context will be shifted. Some boundaries will inevitably be privileged, and doing so could create a new form of power of normalisation. There could be continuous critique about potential 'normalisations' that are derived by this privileging. What this seems to say to an individual or collective self who is concerned with ethics *is that action (under any ethical concern) is inevitable and should be developed and accepted with its own consequences.* Either there will be a shift in the power that targets an individual and then his/her individuality in power will be modified or reinforced (and this should apply for every individual who takes part in an interaction); or the dynamics of power will be shifted towards a new set of power relations between groups and/or individuals. And then new tensions will appear, new concerns will emerge, boundaries will be distinguished in action and there will be the opportunity of conducting critique to what appears to be improvement in a situation.

The above ideas will inform the practice of systemic intervention, as I will now explain.

12.3.5 Informing systemic intervention with critique on power-ethics

From Vega-Romero's account, it seems possible and necessary to inform the use of boundary critique with critique on power and ethics in relation to the boundaries distinguished. This new form of critique should add to boundary critique by enhancing reflection on issues related to ethical identity. For systemic intervention, identification of issues that relate power and ethics could prove useful for those practitioners who want to want to 'do something' about a situation as part of their own ethical concerns in a context of intervention where they are engaged.

From the above, it also seems essential to account for the critical management of ethical issues arising in systemic intervention, not only for distinguishing them but also for the possibility of acting continuously in relation to them and considering the

tensions that exist between different subjects as subjects of power. Critique could be developed in a form of questioning that considers issues of power and ethics when dealing with boundary critique in intervention. This form will be presented here.

12.3.5.1 Critical questioning about the tensions: reflection on power-ethics

Considering the characteristics of power so far reviewed in the previous chapter of this thesis and in this one, it is possible to develop a form of questioning that an individual or collective self can use to enhance its critique of power and boundaries. Questioning could lead to challenging assumptions about ethical identity of subjects and foster critical action. Once ethical identities have been distinguished (by using for example questioning like the one proposed in section 12.3.3 of this chapter), critique can be conducted regarding a self who might be engaged in systemic intervention by posing questions in the following categories:

Subjects

- From the ethical subjects identified by using critique of power-ethics, what ethical subjects are relevant for developing action towards improvement in a current situation? What are the purposes of these subjects?
- Which concerns need to be prioritised in the actions of these subjects in their ways of life?

Power relations

- From reflection on power tensions identified[163], what obstacles and opportunities will I (we) have when improving the situation?

Systems boundaries

[163] The identification of power struggles might entail going deeper into the analytics of power. For a more detailed account of how this can be developed, see Foucault (1982a) or Dreyfus and Rabinow (1982).

- From opportunities for action, what boundaries can be inferred and privileged from engaging a self in tensions with others? What are the consequences of privileging such boundaries?

- What knowledge is included as relevant within these boundaries?

Improvement

- How should one be aware of new power struggles, concerns and boundaries?

The above questioning intends to highlight issues of power that will affect the setting up of boundaries in intervention. At the same time, these boundaries might result in new forms of power that will shift existing power imbalances in relations. Questioning about the above categories should produce a set of research issues that should be addressed as a whole system of inquiry particular to the situation addressed (Midgley, 1990, 1997a and 2000).

In this inquiry, some selves (individual, collective) might find that this questioning does not relate to their own concerns and expectations in improving the current situation. A systems thinking practitioner who is aware of the importance of the notion of power in relation to the distinction of boundaries should find the most appropriate way to address the categories identified according to the context of intervention. Any method or approach that could direct inquiry towards these categories should be used in interaction. In this regard, there could be interesting possibilities for further research. The purpose of inquiry should be to foster reflection towards the identification of possibilities for action in a local context in relation to identified power relations[164]. Different views should be gathered, and action should be decided on the basis of improving a situation locally, also with a parallel perspective for a self (individual or collective) of developing an important step towards its ethical development.

The interactions between the elements of power-ethics introduced in this chapter and the existing methodological framework (chapter seven of this thesis) can be seen in the following figure:

[164] This does not mean that the scope of actions is only local, as actions could have an overall impact of society. What it does mean is that individuals in a context should be able to do something about a 'local' situation and the concerns identified as relevant.

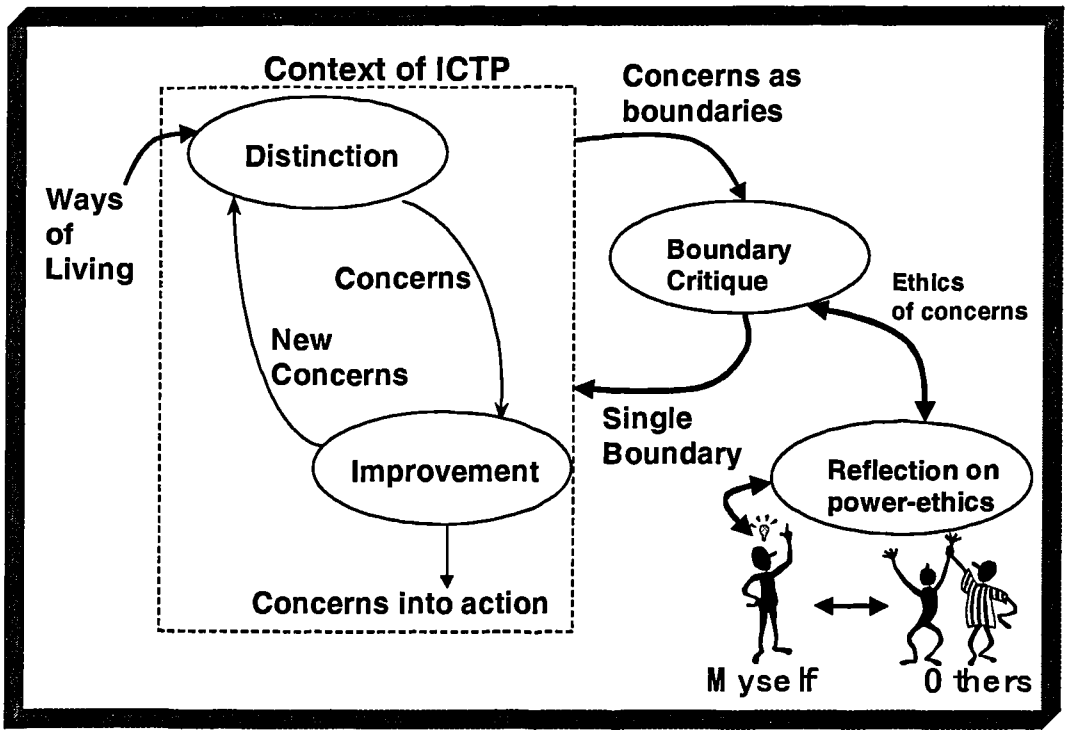

Figure 12.2 Enhancing critique with reflection on power-ethics.

In the figure, reflection on power-ethics is enhancing critique on concerns identified and the setting up of boundaries. This reflection considers the notion of power as shaping relations between a self as an ethical subject with others. As the product of reflection, new boundaries might be privileged and action could be taken. At the same time, boundary critique will help reflection on power and ethics by identifying knowledge that is considered relevant for improvement in a design.

12. 4 Implications for the Practice of ICTP

The adding of the notion of power-ethics has enriched the use of boundary critique and has provided grounds for enhancing the notion of systemic intervention. There is an enriched awareness of what concerns as boundaries might contribute to the dynamics of power relations and to the construction and re-construction of ethical identities of individuals and groups.

For the practice of ICTP, there is a series of implications derived from focusing on a self with others. First of all, the reflection on concerns for a self could challenge the universalisation of moral concerns in relation to information-based issues. Claims

such as those posed by Mason et al (1995) of having a framework to allow practitioners to discern the ethics of information management should be challenged, as they do not seem to touch directly the self who as a practitioner is discerning different situations. Nor does the context of relations play an important role. Practitioners are not any more acting in a vacuum regarding their own ethical concerns. They are immersed in relations and concerns emerging from there could be considered concerns that need to be criticised as possibilities of subjecting individuals or groups.

Second, the existence of prescriptive 'ethical' codes about information and ICT seems to pose a space of discourses for practitioners. In situations of ethical dilemmas, they seem to leave the final decision to the professional judgement of practitioners (individual selves) (ACM, 1993). The notion of power-ethics presented in this and in the previous chapter allows self-reflection to support the decision process for an individual self. It is a support that engages an individual self to the context of relations where he/she is deciding what to do. An ethical code should be seen as an attempt to shift power relations towards specific purposes (perhaps 'normalising' individuals' behaviour). As such, it could offer possibilities but also constraints for action for individuals. Ethics in the realm of ICT should be seen as a tension between different ethical claims that a practitioner needs to resolve, considering the context of relations in which he/she is immersed. To the existence of codes, debate about ethical issues seems to be preferable to 'ethical' prescriptions given by practitioners (Munro, 1994).

Third, the use of the notion of power to understand ICTP acquires a new dimension regarding the ethics of practitioners as immersed in ICTP with other selves. The conceptions of power so far reviewed in this realm (Walsham, 1993; Walsham and Waema, 1994; Horton, 2000) seem to describe ICT planning as influenced by power, but without conceding importance to the role of those practitioners who interpret ICTP or intervene in it. For the applications of systems thinking to ICTP, the focus could shift to a dimension which enhances critique and self-reflection. It should shift from providing a full account of the mixing of systems methods (as in the case for example of Lehaney and Clarke, 2000a and 2000b) to developing critique on power. This does not preclude the mixing of methods, but advances the critical aspect of this practice.

Critique means, then, being more critical towards those practitioners (including in the case of researchers engaged in interventions of ICTP, themselves) whose decisions (including the mixing of methods) had an impact on power relations and hence on the potential 'normalisations' of themselves and others as ethical subjects. For an ICTP practitioner this means that he/she should consider his/her engagement in different power relations; within those a practitioner might be living an ethical identity of which he/she should be aware, and change it if necessary towards his/her own ethical project as a subject. Regarding the use of different approaches and methods to practice ICTP, they should be reviewed on the basis of the influence they promote between identities of selves and power relations. The raising of concerns in ICTP should also entail critique on the forms of identity reinforced or challenged for selves.

The 'strategic' view of ICTP within the Information Society as a process characterised by interplay of different individuals and groups who are exhibiting different concerns, is further understood when including reflection on identities that could be created or re-created. As Munro (2001) has said, the use of information technology has created possibilities for developing 'informated' identities, which seem to normalise individuals. It has also given possibilities to create 'project' identities, identities which evolve through time and counteract normalisation. Such identities make technologies mediate between everyday practices and conceptions of the self. In such a situation, there is the risk that identities become dependent on technological facilities.

There is the need to challenge the above trend, as it could contribute to 'normalising' identities of subjects in societies by attaching them to technology. Such dependence could contribute to undermining the need to have other possibilities for action and for the ethical development of subjects and societies. In this respect, it can be argued that the use of technology could or could not help a self to constitute an identity. A quest for a self should be open to different situations, and more importantly should provide him/her with the opportunity to strive to achieve a disposition towards choosing and acting according to what he/she considers good. ICTP can give such an opportunity as it gave it to a self like myself. It should provide grounds for being critical and for revising continuously the moral quest in relation to a self and to others.

With the notion of power-ethics related to the identification of concerns and boundaries in ICTP, the claims of connecting the development of an Information Society to local conditions of societies gains force. Issues arising as ethical should

be considered in relation to the conditions of contexts where people are being immersed (Chepaitis, 1997). A critical attitude can be seen in efforts that strive to counteract the spread of an information-based vision of society. With the notion of power-ethics provided, action can be seen as more selective in relation to offering power resistance, re-creating power relations or acting in between. This opens up different possibilities for initiatives that improve living conditions in society. By promoting actions at different levels (technology based or not, not necessarily at a community level) those selves concerned with improvement have space to create action and enrich their own quest as a critical, systemic and ethical life project.

The introduction of the notion of power-ethics could give a subject (individual and collective) the chance of constructing and re-constructing its ethical identity by looking at possibilities for action given in relation to power. However, this chance might create continuous tensions between a self and its engagements with others. What are we to do about these? There will inevitably be conflicts between people living different concerns and it seems that it is up to selves to decide which engagements they want to have and how they are going to engage with others. These conflicts could be better seen as sources of reflection and of action for those who want to make a systemic project out of their own lives.

12.5 Conclusions

In this chapter the notion of power-ethics has been included to enrich reflection on boundary critique and systemic intervention. A context of emergence of concerns and systems intervention has been characterised in terms of power-relations between a self (practitioner) and others. Critique of improvement through boundary critique has been enhanced with critique on power-ethics forms that influence and are influenced by the setting up of systems boundaries individually or collectively. For an individual self like myself the notion of power-ethics constitutes an invitation to develop my own ethical project continuously, bearing in mind the existence of power and the tensions with others. The notions proposed should also enrich the practice of Critical Systems Thinking and ICTP by providing grounds to foster debate, awareness of concerns and the need to include a self and others in the picture as part of ethical development for individuals and groups in the information society. With an enriched notion of concerns, boundaries and critique, improvement should

also be enriched towards bettering the way of life of individuals and collectives in society.

Chapter 13: Conclusions

I would like to recall the main aims of this thesis in order to assess their achievement. The aims were:

1. *To situate the process of ICTP within the development of the so-called information society, and to provide a 'strategic' view of ICTP. In such a view different concerns of individuals and groups of people can be included to be addressed in the definition of any initiative aimed at improving the way of life of individuals and collectives (with or without the use of information technology).* The main tenets of the information society have been presented. Results of the development of this type of society have been examined. A view of the development of the information society has been developed from the perspective of critical systems thinking and the process of information and communications technology planning (ICTP). This view considers that there are different groups of actors with different concerns for action. To the diversity of concerns, a proposal for seeing the development of the information society as 'strategic' has been made. Different concerns have to be managed, including the concerns of wider groups in society ("the public"). The name of 'strategic' also obeys the need to be critical and aware of the impact that information technologies are having in the way of life of people in societies.

2. *To develop a more inclusive perspective for planning under the strategic view for the information society. This inclusion means promoting a greater degree of participation of people involved (directly or indirectly) and affected by a process of ICTP. It should be possible in planning to include a variety of people and their concerns about their ways of life.* Such a strategic view for ICTP has also considered new developments in strategic planning as informing the practice of ICTP. New developments suggest managing not only organisational concerns (like efficiency) but also those 'emerging' concerns coming from people's values and aspirations. A view of ICTP should develop awareness of these concerns. Such a view has been considered more inclusive, as it has been argued that people and their concerns for action need to be included in planning. The use of critical systems approaches and theories has allowed inclusion to be addressed through the notion of 'system boundary' as a social construction.

3. *To review existing approaches for planning and for ICTP, in order to evaluate the degree of inclusion of different people and concerns that they foster. This review also considers the role which practitioners play when intervening in processes of planning.* Review of existing approaches has been focused in the realm of strategic planning for organisations. Strategic planning influences ICTP in the sense that a core concern with competitiveness drives the definition and use of approaches. A concern with the provision of information has been found particularly in ICTP when developing it under traditional approaches. It was argued that an alternative approach should bear in mind the existence of different concerns in planning, not all necessarily related to providing or supporting the provision of information in organisations.

4. *To review approaches within the realms of systems thinking in general and critical systems thinking (CST) in particular, which have been applied to ICTP, regarding the inclusion of different concerns and people, the role of practitioners and the dealing with ethical issues arisen in the practice of intervening in ICTP.* A review of systems approaches used to support intervention in ICTP has been made. Approaches like Soft Systems Methodology (SSM), Multiview and TOP have been reviewed. These approaches are driven by the core concern of providing information-based plans. Moreover, the goal of achieving a degree of accommodation between the interests of participants in planning seems to undermine the scope of the process and the role of practitioners. Critical systems thinking approaches have also been reviewed. In those the core concern with information and the lack of critique towards the role of practitioners regarding the raising of ethical concerns have been identified as issues that need to be addressed when defining an alternative critical systems thinking approach for the process of ICTP.

5. *To combine the systems theories of autopoiesis (Maturana and Varela, 1987) and boundary critique (Churchman, 1979; Ulrich, 1983; Midgley, 1997a, 2000) in a framework that supports a more strategic and inclusive view for the process of ICTP within the information society.* A synergy between these two theories has been defined, developing a common notion of concerns as boundaries. In this synergy, autopoiesis has been found useful to keep openness towards different concerns. The main elements that compose the explanation given by autopoiesis of the phenomena of human interaction have been defined. These elements have contributed to create awareness of the condition of human beings as

autopoietic systems of 'not seeing what we do not see'; such a condition fosters awareness and openness on practitioners in order to seek the coexistence of different people living under different concerns for 'others'. Awareness also involves practitioners as human beings, who raise their personal concerns.

In the same synergy, the use of boundary critique has been suggested when challenging of assumptions needs to be developed and when situations of conflicts between people exhibiting different concerns are found. Challenge has been directed towards the notion of improvement and its relation to the existence of different systems boundaries. Moreover, the use of systems boundary critique has allowed practitioners to contemplate the possibility of discussing with participants in ICTP about the consequences of privileging certain boundaries for action. Boundary judgements bring ethical implications about issues and people that are privileged in action. Action towards improvement resulting from boundary critique has been defined in practice in the process of ICTP planning at Javeriana University in Bogotá, Colombia. This action has been influenced by the context of relations between people. This context is manifested in the different domains of interaction in which individuals (including practitioners) taking part in planning are immersed.

The synergy defined constitutes an important contribution to the realm of Critical Systems Thinking (CST). I have argued that it is possible to combine theories and approaches that influence each other mutually. The mutual influence between autopoiesis and boundary critique enhances possibilities for critical thinking about situations, and maintains a sense of continuous awareness towards inclusion, exclusion and marginalisation of people and their concerns. It also enables practitioners to address different research questions by including different methods that could be used to tackle different problems, and allows people to include themselves and their concerns in the situations with which they are dealing.

6. *To apply and evaluate in practice a methodological framework that combines the ideas of autopoiesis and boundary critique, as well as the complementarism between systems methods.* A methodological framework to support the strategic view of ICTP based on all the above premises has been defined. In the use of this framework in practice at Javeriana University in Colombia during the period between March and July 1999, different concerns have been identified as coming from the way of life of individuals (current and desired). The use of the methodological framework has allowed researchers to distinguish concerns that are considered relevant to improving ways of life at Javeriana and in the Colombian society. Issues of fostering values of peace and solidarity, co-ordination of initiatives, evaluation of the impact of technology-related initiatives and continuous development of a culture of learning (also with information technology) have been identified. These have been addressed through the definition of proposals for change and initiatives for action.

   In the application of the methodological framework, the opportunity for participation has been opened for people to raise different concerns individually and collectively. These concerns have been respected as coming from equally legitimate domains of interaction. Concerns have been addressed with the help of different methods, most of them known in the realm of systems thinking and critical systems thinking (CST).

   The application of a 'strategic' approach for ICTP in practice has resulted in the exploration of further issues that open interesting possibilities for research in this realm. This has been also a contribution of this thesis. Issues of concern particular to the context of intervention have been raised that could inform future processes of planning and policy formulation. There is also an alternative approach for ICTP that can be used for reference in future interventions. This approach deepens the study of issues of participation, the use of methods, the role of practitioners and the context of relations between people that influence and are influenced by ICTP. It is a critical approach that fosters continuously the challenging of system boundaries involved in planning and enables practitioners to 'flow' in the interactions with others as new concerns from the way of life in society emerge. In this approach, it is also possible to address various research questions with the help of different methods.

7. *Having explored a strategic view for ICTP in practice, another aim of this thesis was to inquire more deeply into the issue of ethics that arose during the process conducted at Javeriana University.* During the practice of ICTP, it has been argued that the context of relations between people has influenced and is influenced by practitioners raising certain concerns. A view of the context of ICTP as composed by different domains of interactions (as is proposed in autopoiesis) has left practitioners like myself with difficulties. These reside in the obstacles that a self finds when trying to include 'others' in different domains of interaction, either those in which they take part or new ones in which co-existence between concerns is fostered. For the author of this thesis, it has become an issue to raise ethical concerns guided by critical thinking about improvement and co-existence.

   It has been argued that to surmount the above situation that a context of relations needs to be characterised better by the possibilities that self-reflection on ethical issues (like coexistence or improvement) brings for practitioners. From the practice of ICTP, what has resulted from the above attempt as a critique is the distinction of myself as an ethical subject, an individual subject concerned with issues that I consider have ethical implications. This is my own distinction. It is based on the grounds that I consider myself as a particular subject immersed in a context of interactions. I have found myself as called to inquire more deeply into the nature of a self as an ethical subject, bearing in mind the existence of different ethical concerns in different domains of interaction.

   As we go deeper into the developments of Critical Systems Thinking (CST) that foster self-reflection, it has been found that self-reflection is promoted as conducted with others as a condition to broadening the boundaries of knowledge considered as relevant when deciding about improvement in a situation. In some cases, this conducting with others has been seen as a critical process in which practitioners need to be aware of the existence of power relations, which might inhibit possibilities for action in a context of relations. Michel Foucault's notion of power has been used to foster self-awareness and collective awareness on possibilities and constraints for action. This notion seemed to offer possibilities for enhancing a critique of ethical issues and the interaction between an individual self and others.

In other developments of CST that foster self-reflection, critique has been directed at achieving a degree of communication and dialogue between individuals. This seems to be driven by following Jurgen Habermas' account of human interests in the production of knowledge. It has been argued that such account has in the background an ethical commitment towards emancipation, which might not apply to every context of intervention. Dealing with other ethical issues seems not to be a matter of concern when fostering self-reflection in the interaction with others. There is the need to provide individuals with a view of what happens when they raise ethical issues. This view should contemplate the fact that in interaction there are different tensions between people raising ethical issues. Michel Foucault's notion of power seemed to offer such view and to immerse individuals and groups in a context of power relations characterised by inevitability of power, its asymmetry, its inequalities and its possibilities for action regarding the existence of freedom.

8. *From the above exploration of ethics, another aim was to introduce a critical notion to enrich the practice of ICTP and the use of the methodological framework for future interventions. This notion is the notion of power-ethics, derived from the work of Michel Foucault on ethics (Foucault, 1977b, 1984a and 1985).* To deepen the issues of power and ethics as influencing self-reflection and reflection with others, an exploration of the work of Michel Foucault was developed. The notion of power offered an interesting account of how individuals and groups have become ethical subjects. In Foucault's work, there is a direct link between power, knowledge and ethics. Foucault's analysis of the history of sexuality led him to develop the view of ethics as a project developed by a subject in connection to power relations. It is a project of continuous critique on the modes in which individuals and groups have been constituted. The analysis of Michel Foucault of ethics opened up possibilities for critique on the raising of ethical concerns by subjects, either at the individual or collective level. This two-fold notion of power-ethics was complemented by the Foucault's 'analytics of power' that contributed to enhance critique and to enrich the distinction of boundaries as concerns.

With these possibilities coming from power-ethics, the methodological framework was enriched with a critique on power-ethics complementing boundary critique. The awareness of the limitations of individuals as autopoietic systems who observe and distinguish phenomena (including themselves) can be expanded further. The implications for the practice of ICTP led the author of this thesis to formulate systemic intervention as a continuous and critical activity regarding the constitution and re-constitution of individuals and groups as ethical subjects. ICTP Practice is argued to be an activity immersed in power relations. The existence of domains of interaction between individuals, as proposed by Maturana (1988) and Maturana and Varela (1992) can be better seen as a *domain of power relations, which are in continuous tension.* In the same way, the existence of different boundaries can be better regarded as being in continuous tension and dynamic exchange. Tension is inevitable, so is action, and the consequences of actions are not fully determined. In this claim there are limits, but also opportunities for improvement.

For Critical Systems Thinking, the critical notion of power-ethics adds important insights. It complements the work of Midgley (1997a) and Midgley and Ochoa-Arias (1999) about systemic intervention and offers and alternative for the understanding of power in it. The ethical role of practitioners can be now subjected to criticism not only in relation to an intervention itself, but also to the ethics fostered by practitioners. Individuals or groups can exert continuously critical thinking regarding the concerns that make them distinguish themselves as 'ethical subjects' and the actions that they develop continuously in their interactions with others.

For individuals and groups, the above also constitutes an important contribution. It opens the possibility to develop continuous action and awareness of the development of ethical identities in the information society. For the author of this thesis, this invitation is a constitution of a systems project to construct and re-construct myself continuously as an ethical subject. This subject interacts with others in his/her purposes to improve him/herself and contributes to the improvement of the way of life in the information society. The project will continue here where this thesis ends.

In summary, this thesis has provided the following contributions to knowledge:

- A methodological framework has been defined in the realm of ICTP that develops a 'strategic' view of it. This methodology has innovations in the use of different parts of systems thinking theories (boundary critique and autopoiesis), methods and approaches (like the use of 'enriched pictures', the critical engagement in different domains of interaction and the combination between Interactive Planning, Critical Systems Heuristics and Soft Systems Methodology).
- In the realm of Critical Systems Thinking (CST), critique has been enriched with critique on ethics and power. This offers interesting possibilities to enhance self-reflection of practitioners when conducting systemic intervention or when reflecting about their own life projects.
- A synergy between two systems theories (autopoiesis and boundary critique) has been achieved, with two distinctions that help enriching critical thinking using these theories. One is the understanding of concerns as systems boundaries. The other one is about concerns on ethics as immersed in power relations and influencing and being influenced by the setting up of systems boundaries. This synergy is critical and fosters self-reflection on the boundaries adopted to privilege issues or people in actions.
- An understanding of the development and emergence of issues related to the development of the information society in Colombia has been achieved. This includes a better understanding of how people interact with each other in processes like planning and how people are concerned about their ways of life and improvement in this society. Such an understanding is useful and has been enriched in practice. It can be a useful reference for those engaged in future research to be conducted in the realm of ICTP in countries like Colombia.

Appendix

Appendix 1. Exploring Possible Roles of Information and Communication Technologies at Javeriana University — Complementary Information of the Phase of Distinction —.

A1.1 My attempts to conduct a project of ICTP in 1999

The alternatives included two other possibilities of doing practical work. First, to intervene in the "Merlin" project developed at Hull University. The aim of this project was to develop a software tool to support processes of education. The tool was supposed to take advantage of the facilities of navigation of the Internet. Dr Gerald Midgley and I from the Centre for Systems Studies at Hull University attended a presentation of this project at University and sent a proposal to collaborate within the project. This proposal emphasised the need to push out some of the boundaries adopted in the project to other groups of people not initially involved in the development of the software tool. Also it was intended to highlight different issues which needed solution in parallel with the software implementation.

The second possibility I explored was to intervene in a community initiative in the city of Hull called "IT in the community". This initiative was to provide basic computer training to disadvantaged groups in Hull. The initiative had set up different community training centres around the city. I sent a letter to the director of the initiative, suggesting a way of collaboration between them and Hull University. The letter proposed to help them to develop a strategy for implementation of complementary IT training services in the different community centres. I intended to use the framework to foster reflection on the need to link actions to be developed with values that people intended to keep in their communities.

Neither of these initiatives was fruitful. People did not reply to our proposals and we decided to continue our exploration in other areas. However, it is clear that there was a particular interest for me in supporting existing actions and encouraging reflection about boundaries used.

A1.2 My own concerns before starting the project in 1999.

In my experience previous to my PhD as an ICTP practitioner, it seemed to me that people were not fully involved in the definitions of actions to be taken when designing information systems plans. There was also some kind of 'imposition' of the purposes of information systems made by senior managers or staff (Walsham and Waema, 1994; Bell, 1996; Earl, 1998; Clarke and Lehaney, 2000a). For example, in working in a savings and loans institution, I noticed that only the senior management were invited to define what the strategic corporate goals and factors for success were. As Checkland and Holwell argue (1998), the above goals and factors were taken for granted when designing the information systems plans and projects. Although during the process of strategic corporate planning, people from different areas were encouraged to define their own strategic plan, they needed to align their interests to those defined by the levels above. Information for diagnosis was gathered across the country in the organisation's branches, but the final decisions on projects and plans to be carried on were left to the senior management. People felt confused or disappointed as they raised issues which never were addressed by the so-called 'strategic corporate' projects (Córdoba, 1998).

At a different level of discussion, in the period between 1996 and 1997 I had had the chance to be involved in a group which was defining an information technology plan for Colombian society (PNI, 1997). At this level, the discussion turned out to be different. There were people from diverse backgrounds and institutions (government, education sector, software industry sector, telecommunications sector, technology users, and technology-issues associations). My impression after being engaged in those discussions was that the main aim was to define clearly and almost in a unique way what to do. Discussions arose about what the main problems were of not having an Information Society in the country. For some people there was a lack of proper education in technology. For others it was the absence of a competitive software industry. For others it was the lack of access to information. There were difficulties in achieving a degree of consensus or coherence in the initiatives that were defined. Nor was the detail of how initiatives were going to be implemented clear for me.

A1.3 A complementary description of the 'enriched picture' obtained through the phase of distinction in the project in 1999

The concerns found are summarised in the following 'enriched' picture (Diario, 1999). Emphasis is put in concerns for action more than in cultural or political aspects at Javeriana.

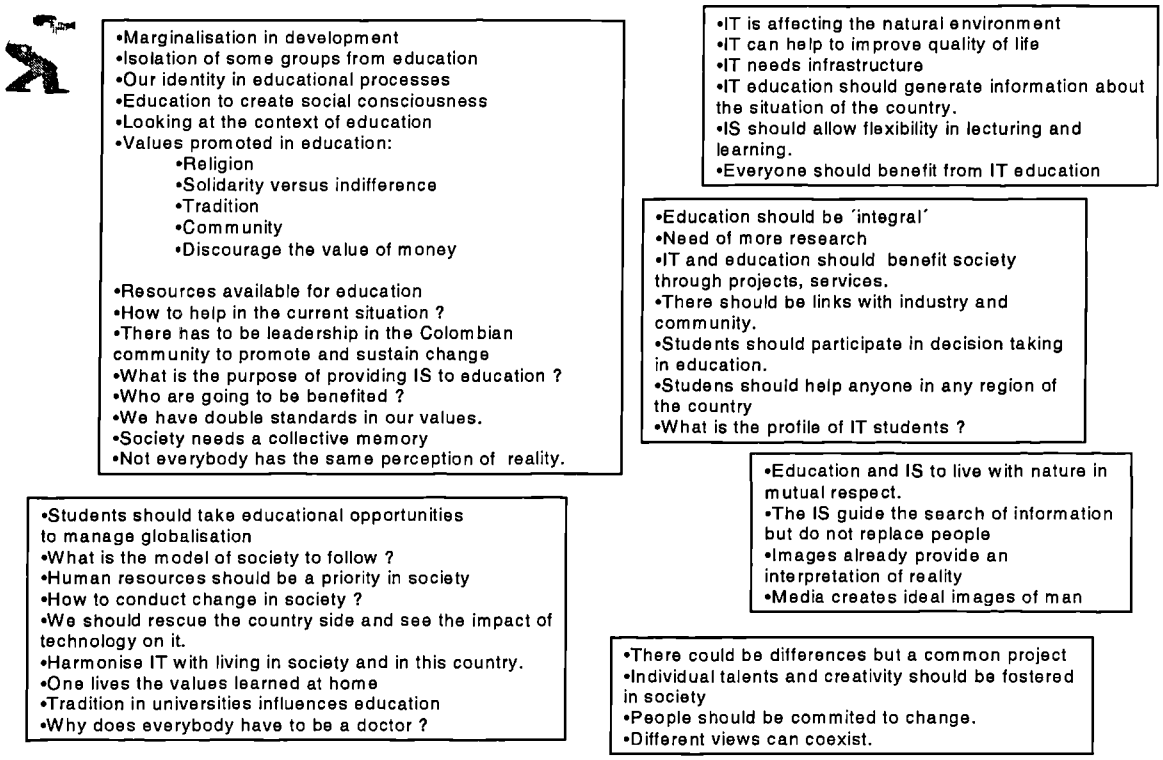

Figure A1.3.1. The 'enriched' picture revisited.

In the picture, we grouped issues in some common areas, in order to be able to address them separately and in an integrated manner depending on how people would like to address them. As can be seen, there are issues related to the promotion of certain values in society. Education seems to be the vehicle to do that. This promotion also embraces a more open but critical attitude towards the adoption of foreign models of society. Society should offer the opportunity to individuals to develop their capabilities and talents fully. Therefore, education should be designed according to particular needs of individuals, bearing in mind their future performance in Colombian or other type of society and the need to create solidarity among people, and a commitment to improve the existing the situation in the country. A more integral education is needed although respect for difference is essential.

About technology, the picture shows different perceptions that should be taken into account in any ICT plan. For Javeriana, it is important to assess the impact that ICT will have on the natural environment and people; to assess the benefits that actions will have for society as a whole; to encourage ICT students and practitioners to bear in mind the consequences of their actions. A profile to be developed in education using ICT should consider benefits that a practitioner can give to domains of actions where he/she will be immersed (industry, government, education, etc).

Technology should play a role in society, not by replacing people or contributing to the development of an image-based model of education without any reflective process supporting it. Different uses of technology can help to improve education. What seems to be important is the harmonisation of ICT within society and its groups. A question that remains open is how to make sense of ICT to address existing concerns in society. It seems that this question had been addressed by different efforts at Javeriana. How to integrate them? How to co-ordinate them? What are the values underlying them? Are people willing to collaborate with different initiatives?

Participation of people seems to be considered an essential element in improving the current situation. Individuals feel part of their (our) society. They see the need for a change and see leadership as a practice, which could bring this change to reality. This willingness to participate contrasts with a confusion about how to do it. It also contrasts with the awareness noticed at Javeriana as an institution of the need to 'manage' participation, as some of the initiatives may be harmful for the institution and its purposes[165]. What kind of participation should be fostered within the Javeriana community to allow people to develop themselves and to create a culture of values of solidarity and improvement in society? How should one go about different degrees and styles of participation? How are we to make people assume an 'appropriate' degree of participation?

[165] For some people it was clear that students could not participate in all instances of decision taking, as it implied that they should also assume responsibility with the consequences of the decisions. In some cases dealing with financial responsibility, it became apparent that students could not assume responsibility (Diario, 1999).

Appendix 2. Other Practical Outcomes from the phase with emphasis on design (improvement)

In some of the design exercises and through our critical engagement with others, we were able to identify in interaction some other areas or themes which needed immediate and mediate attention towards the purpose of improving the way of life at Javeriana by improving some of the existing practices. Among the proposals presented to the senior staff at Javeriana in the final report (Documento_4_Javeriana. 1999) there were:

1. Establishment at Javeriana of an organisational unit whose main responsibility was to ensure the 'inclusion' of different groups of people in the development of projects, as well as the continuous monitoring and adjustment of the plans of projects.
2. Creation of a culture of 'awareness' among members of the institution in which people promote values of solidarity and sensitiveness towards current problems within Javeriana and in Colombian society.
3. Definition of mechanisms to evaluate the social impact of the use of technology at Javeriana.
4. Design and implementation of a student-centred information system to support the educational process.

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