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JOSÉ-RODRIGO CÓRDOBA-PACHÓN
GERALD MIDGLEY
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JOSÉ-RODRIGO CÓRDOBA-PACHÓN
GERALD MIDGLEY
Centre for Systems Studies
The Business School
University of Hull, Hull HU6 7RX
Email: j.r.cordoba@hull.ac.uk

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Abstract

Most current information systems (IS) planning methodologies are focused on achieving 'successful' plans, i.e. plans that provide competitive advantage, can be implemented in a given period of time, and that solve the problems of information needs by taking advantage of the latest technologies available. Concerns are technology and business driven, and focus on how to get the maximum profit for organisations from investing in information systems. However, this relatively narrow focus can be problematic, especially in developing countries where the social contexts of IS implementation may require a different primary focus. This chapter presents a methodology for IS planning based on critical systems thinking – an approach that encourages the critical analysis of stakeholder understandings of social contexts prior to the selection and/or design of planning methods. The methodology presented in this chapter uses a combination of the systems theories of autopoiesis and boundary critiques, which deepen our understanding of what it means to reflect on participation, values and social concerns during IS planning. In the course of applying the methodology in a project in Colombia, an issue arose of the ethics of the practitioner. To address this issue, following completion of the project, we sought to enhance critical systems thinking with Foucault's notions of power and ethics, which offer interesting alternatives for practitioner self-reflection. Implications for IS planning are derived from this perspective on ethics and power.

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1. Introduction

In the development of the world-wide information society, information systems (IS)¹ play an essential role: they provide access to opportunities for exchanging information. For nation states, the use of information systems is seen as a condition for survival in a global economy characterised by the management of knowledge as information (Toffler, 1992). For organisations, they provide support for achieving task efficiencies and dramatic reductions in service delivery time and/or costs (Hammer and Champy, 1995). Hence, the process of IS planning becomes important at all levels – international, national and organisational. Any investment in information systems or technology should be made carefully in order to achieve success in terms of the stated goals of a plan (Andreu et al., 1996). A key aspect in the process of IS planning is the definition of an initiative from a strategic point of view, i.e. considering the possibilities that an information system presents in giving some players advantages over others (García, 1993).

For third world countries, information systems and information technologies have been seen as the means by which they can catch up with the economic development of the first world (Economist, 1996). A new type of society, the information society, can be created to achieve better conditions of life, education, higher employment and the enhancement of democracy (Information I, 1996; Gore, 1998). However, practical results suggest the need to consider what assumptions are being made when people enter IS planning processes, particularly the relationship that is assumed between information systems and improved quality of life (Friis, 1997; Wickham, 1997).

Most existing IS planning methodologies focus on re-formulating corporate strategy with the use of information systems in such a way that competitive advantage is provided for an organisation (Ward et al., 1990; García, 1993; Walsham, 1993; Galvis, 1995, 1998). These methodologies emphasise two aspects:

- Defining information needs in relation to performance and the control of tasks; and
- Analysing the potential offered by information systems to create new business or service opportunities (Andreu et al., 1996).

The main concern here seems to be the achievement of economic benefits for an organisation through the implementation of information systems (Ward et al., 1990). This concern is reflected in the discourse of IS planning as focused on “computer based information systems” (Walsham, 1993) or the “orderly provision of data and information within an organisation using IS” (Checkland and Holwell, 1998).

In this chapter, we challenge the assumptions of the majority of IS planning methodologies by proposing a critical approach in which different concerns expressed in the *way of life* of people can be brought into debate. We argue that traditional IS planning methodologies generally fail to account for a sufficiently diverse set of concerns, and thereby lose opportunities to define information systems in ways that can play more meaningful roles in the group contexts where they are going to be used. We argue that our application of a critical approach to IS planning in a Colombian organisation (Javeriana University) resulted in identifying concerns that are often excluded from planning but actually

contribute to improving some of the aspects of life in Colombia, as well as the use of information systems. Also, this application brought forth the issue of the ethics of the IS practitioner. To address this issue after our application was over, we conducted further research on ethics and power. In particular we focused on the work of Michel Foucault, which we suggest offers interesting alternatives for the self-reflection of practitioners during interventions. Implications for the practice of IS planning are then derived from the synergy of Foucault's ideas with our own methodological thinking.

The paper is structured as follows. First, a description of IS planning methodologies in the information society is presented, bearing in mind some of the consequences that their use has brought for organisations and societies. Our reflections on IS planning have led us to propose an alternative approach, drawing upon 'critical systems thinking' (a set of methodological ideas mostly found in the management systems and operational research literatures), which is presented next. A methodology to support the implementation of the approach is defined, as well as some reflections on its application in an IS planning exercise at Javeriana University (Colombia). From there, the idea of enriching the approach with Foucault's understanding of ethics and power is proposed. This brings interesting possibilities for the practice of IS planning. Most importantly, it encourages awareness in practitioners of the issue of ethical self-development.

2. IS Planning Methodologies in the Information Society.

In the past few years, new information and communication technologies (ICTs) have been developed, principally integrated with computers². This creates opportunities for enhancing the performance of business processes with ICTs (Keen, 1991; Galvis, 1995). In first world countries the development of economies in which products and services enable the exchange of knowledge in the form of electronic data has been complemented with a political concept called the 'information society' (Information I, 1996; Commission of the European Community, 1997; Gore, 1998). In the information society, it is said that almost every aspect of daily life will require information (Information I, 1996). Also, just about anyone can create information-based products and exchange them because the main capital invested is intellectual knowledge rather than money (Toffler, 1992). The information society can therefore enhance democracy and empowerment (Rogerson, 1996). UNESCO (1992) goes so far as to claim that third world countries should view ICTs as an opportunity to foster the development of their economies within the new information society, allowing them to catch up with first world nations.

IS planning methodologies are often used when people propose the adoption of ICT supported information systems in organisations. These methodologies usually link thinking about information systems with the corporate strategic planning process in such a way that information systems are primarily seen as providing competitive advantage (Ward et al., 1990; Walsham, 1993). Nevertheless, it is often said that IS planning can empower people and give them greater autonomy (Hammer and Champy, 1995). The potential 'users' of the technology need to be involved because they are the ones who know best how information systems can be employed to support business processes or practices. Their commitment is essential (Ginzberg, 1978, 1981; Ward et al., 1990). However, it is generally taken for granted that (i) individuals at different levels have the same concerns as the businesses they

work for, and (ii) they actually do want greater autonomy (Currie, 1994; Willmott, 1995). There is arguably a contradiction embodied in the supposedly participatory practice of IS planning: people are given a degree of autonomy in decision making, but at the same time are expected to make more of a commitment to dominant organisational purposes (Willmott, 1995). Organisations are still viewed as unitary systems with coherent purposes and goals rather than as collections of people with many (sometimes conflicting) concerns (Clarke and Lehaney, 1997a,b)³.

For society in general, it is assumed that the main reason for using information systems is to gain economic benefits that can help to improve people's quality of life. The premise for thinking that information systems will help in this way is that existing marginalised groups can be included in the economic sphere, perhaps for the first time. A well researched example is some disabled people who can take advantage of new technologies to do jobs that were largely inaccessible to them previously (Floyd, 1993). Marginalised groups, including those in developing countries, can have access to information and create, maintain or sell information-based products (IBM, 1997; DTI, 1998). The new economy is more accessible for all: "More accurately, as the super symbolic (information) economy unfolds, the proletariat becomes a cognitariat" (Toffler, 1992, p.75). New technology is adopted and used in different sectors like commerce and education as a way of catching up with development (UNESCO, 1992). It is said that the sooner ICTs are adopted, the smaller the gap will be between the first, second and third worlds, and the more economic benefits will be reaped by all (IDC Colombia, 1999).

Nevertheless, research on the results of the development of the information society suggests that the anticipated improvements to quality of life should perhaps be subject to some sceptical questioning. For instance, there is no evidence that the development of an information society has helped to foster better relationships between people (Wickham, 1997). In countries like Denmark, where a national ICT initiative has been running since the beginning of the 1990s, it is said that ICTs inhibit the promotion of certain democratic values that were, until then, important for the society (Friis, 1997). In the Republic of Ireland, one of the key problems to overcome seems to be a lack of awareness amongst people of the social consequences of having an information based economy (Information I, 1996). In South Africa, there is a significant division between groups of people according to their ability to access ICT services, adding to existing pressures in an already divided society (Wresch, 1996).

Although the above involve wider issues than just the implementation of information technology, reflecting on what has happened has led us to reconsider what is being done in the name of IS planning. It appears as if, in most planning processes, there is no clear means to address social concerns promoted by groups with interests that extend beyond competitive advantage. Within less developed economies, even business related issues like job security, ergonomics and working conditions have not been considered as primary concerns in IS planning (Chepaitis, 1997). Also, although the involvement of key employees in defining information requirements and fostering 'information cultures' is considered an essential element for the success of IS planning in organisations, wider forms of participation have been neglected (Clarke and Lehaney, 1997a; Earl, 1998; Lyytinen and

Robey, 1999). Despite a seemingly *superficial* concern with participation, IS planning methodologies have tended to favour forms of user involvement that do not lead to any questioning of dominant organisational purposes.

3. Issues in Colombia

In Colombia, IS planning at the national level has resulted in the launch of numerous initiatives (e.g. PNT, 1997; PNI, 1997; Agenda Conectividad, 2000a,b). Plans to develop and use information systems have been formulated and implemented in areas like education, infrastructure development, promoting community awareness, community information provision, and support for software companies (PNI, 1997). Two imperatives that inform the implementation of information technology in Colombian society are:

- The need for an ‘information culture’ – a set of shared values and norms which allow information to be considered important (Earl, 1998); and
- The need to build the communications infrastructure in order to facilitate access for different economic sectors of the population and overcome a gap between groups of ‘information-haves’ and ‘information have-nots’ (Wresch, 1996).

Planning exercises have involved participants from government and other sectors (PNI, 1997). The results reveal the complexity of the situation and the importance of addressing a variety of different aspects when defining the scope and purposes of ICTs, taking into account the needs and desires of all sectors of the population. Nevertheless, the dominant focus still seems to be establishing an information culture for economic purposes. This is evidenced by the different levels of success achieved in implementing aspects of the National Plan for Information Technology, designed to bring the information society into being in Colombia. Significant advances have been made in the development of the telecommunications infrastructure, the deregulation of telecommunications, the establishment of Community Information Technology Centres⁴, and the enhancement of conditions for developing software industries and mobile telephony (PNT, 1997; IDC Colombia, 1999; Agenda Conectividad, 2000a). Nevertheless, there are still major problems with making IS services more accessible to the general population (Foro, 1999; Agenda Conectividad, 2000b). Vast rural areas remain isolated from the rest of the country. Initiatives to widen participation often lack the full commitment of the authorities responsible for their implementation. Plans to use information systems *massively* in education – but within existing resource constraints – are meeting resistance from teachers and educational institutions (El Tiempo, 1999)⁵.

At the organisational level in Colombia, the traditional model of IS planning linked to corporate strategy has been adopted, and with it the myth that better technology will inevitably help solve practical problems (Lyytinen and Robey, 1999). Technology seems to be a powerful driver for businesses. It is expected that technology will strongly steer the design of organisational processes, policies and hierarchical structures (García, 1993; Galvis, 1995, 1998; Fundacion Social, 1999). Currently, a vast number of organisations fail to implement IS plans on time, and therefore struggle to keep competitive and to bring economic benefits amid the existing recession which brings with it a 20% level of unemployment (El Tiempo, 1999; Agenda Conectividad, 2000a). A huge amount of time

and money has been invested by organisations to implement initiatives stemming from IS planning. The difficulties that have arisen lead some writers to critically reflect on the whole idea that the information society will bring with it improvements in quality of life (Murray-Lasso, 1992).

Given all the above, we argue that it is both necessary and timely to review the assumptions being made by most IS planning methodologies. We need to look again at what it means to enable a better society to emerge through the use of information systems and information technologies. It also seems important to explore how the participation of people in defining IS plans has been framed, and how it could be improved to allow people to include their *own* multiple concerns in planning processes (not just the already-expressed concerns of their organisations).

These (and other) issues of values, social purpose and participation have been addressed in the literature on critical systems thinking (CST). However, only a minority of CST writers have engaged in applications of information systems – most focus on planning and management more generally, both within organisations and more widely across organisational boundaries when dealing with social issues like older people's housing, services for homeless children, disaster planning, health service quality, etc. We have based our own approach on some ideas derived from the continuous dialogue among CST practitioners. More specifically, we combine the theories of *boundary critique* and *autopoiesis*, which have been inter-related on a previous occasion by Córdoba et al. (2000). CST and these two theories are summarised below⁶.

4. Critical Systems Thinking (CST)

The above issues of values, the importance of the context in which planning is conducted, and the need to debate with people about the consequences of plans have been core concerns of critical systems thinkers for a number of years. CST practitioners are primarily interested in the development of *intervention methodology* and the *design of social systems* – which is why it is a relevant source of ideas for IS planning.

The purpose of an intervention, from a CST point of view, is to bring about an *improvement*. The notion of improvement is important because practitioners are restricted in the number of interventions they can undertake, and must therefore make decisions about what they should and should not do. The extent to which various interventions look like they may or may not bring about improvements, or may bring about improvements that have greater or lesser priority, is a useful criterion for making these decisions⁷.

However, it is important not to be naïve when talking about improvement. 'Improvements' need to be understood temporarily and locally. The word 'local' does not necessarily imply that the understanding is confined to an organisation or small group (although this may be the case) – a 'local' understanding may be very wide spread, even to the extent of providing the foundations for legal statutes and international agreements. However, the terms 'local' and 'temporary' remind us that it can be dangerous to assume that an 'improvement' will be universally regarded as such. As different people may use different boundary judgements defining what is to be included in analyses and whose views have

credibility, what looks like an improvement through one pair of eyes may look like the very opposite through another (Churchman, 1970). Also, even if there is widespread agreement between all those directly affected by an intervention that it constitutes an improvement, this agreement may not stretch to future generations. The temporary nature of all improvements makes the concept of *sustainable* improvement particularly important: while even sustainable improvements cannot last forever, gearing improvement to long-term stability is essential if future generations are to be accounted for. We can say that an *improvement* has been made when a desired consequence has been realised through intervention. In contrast, a *sustainable* improvement has been achieved when this seems like it will last into the indefinite future without the appearance of undesired consequences (or a redefinition of the original consequences as undesirable). Of course, whether an improvement is sustainable or not is a matter of judgement (and judgements are inevitably temporary and local, even if they are widely accepted): the limitations of human understanding mean that what may appear to be sustainable at one moment may seem less so at the next. Therefore, in aiming for sustainable improvement, people involved in IS (and other) planning need to periodically review the criteria of sustainability that they are using.

The *boundary* concept follows from this understanding of improvement. We can talk about boundaries defining who is included, excluded or marginalised in debate around a set of plans. Boundaries also define the issues that are seen as relevant, are marginalised or are ignored from particular points of view. It is important to be aware that boundaries concerning who is involved and what is considered relevant to IS (and other) planning initiatives will always be present, even if the participants are unaware of them. Therefore, explicit reflection on boundaries, and conscious choice between alternatives, enables interventions to be undertaken in a spirit of social awareness, allowing understandings of improvement to be subject to critical analysis. These ideas have been developed by a number of authors⁸ and are essential to the theory of *boundary critique* (to be presented shortly).

Another issue of importance to many CST practitioners is *theoretical and methodological pluralism*. These have meaning in terms of the focus on boundary judgements mentioned above: if understandings can be bounded in many different ways, then each of these boundaries may suggest the use of a different theory. The use of multiple boundaries therefore legitimises the use of multiple theoretical perspectives⁹. *Methodological pluralism* then also becomes meaningful because methods and methodologies embody different theoretical assumptions: choices between boundaries and theories suggest which methods might be most appropriate. The principle reason for embracing methodological pluralism is that, in principle, no one method yet devised can deal adequately with all the contingencies we might be faced with during an intervention. A more flexible and responsive practice can be developed by drawing upon methods from a variety of methodological sources and mixing them creatively in response to our understandings of the contingencies of the local situation. Many writings on this have been published in the CST literature¹⁰.

In this paper, we focus in particular on issues surrounding the inclusion of different categories of people in IS planning, the phenomenon of marginalisation, and the use of

different methods to address specific concerns that might emerge during the planning process. These are all matters that the theory of boundary critique addresses, so this is discussed below. Afterwards, we move on to detail the theory of autopoiesis which introduces some additional concerns that we see as relevant.

5. Boundary Critique

Our review of the theory of boundary critique will start with the work of Churchman (1968a,b, 1970, 1971, 1979) who has been widely acknowledged as a major contributor to the development of systems thinking. It will then move on to examine the writings of Ulrich (1983, 1986, 1988, 1990, 1993, 1994, 1996a,b), Midgley (1992a, 1994, 2000) and Yolles (2001) who have built upon the foundations laid by Churchman.

Prior to the work of Churchman, many people assumed that the boundaries of a system are ‘given’ by the structure of reality. In contrast, Churchman made it clear that boundaries are social or personal constructs that define the limits of the knowledge that is to be taken as pertinent in an analysis. There is also another important element of Churchman’s understanding of ‘system’. When it comes to human systems, pushing out the boundaries of analysis may also involve pushing out the boundaries of who may legitimately be considered a decision maker (Churchman, 1970). Thus, the business of setting boundaries defines both the knowledge to be considered pertinent *and* the people who generate that knowledge (and who also have a stake in the results of any attempts to improve the system). This means that there are no ‘experts’ in Churchman’s systems approach, at least in the traditional sense of expertise where all relevant knowledge is seen as emanating from just one group or class of people: wide-spread stakeholder involvement is required, sweeping in a variety of relevant perspectives.

Churchman (1979) also discusses critique. In examining how improvement should be defined, he follows Hegel (1807) who stresses the need for rigorous self-reflection, exposing our most cherished assumptions to the possibility of overthrow. To be as sure as we can that we are defining improvement adequately, we should, in the words of Churchman (1979), pursue a “dialectical process”: this involves seeking out the strongest possible “enemies” of our ideas and entering into a process of rational argumentation with them. Only if we listen closely to their views and our arguments survive should we pursue the improvement.

Churchman produced a great deal of highly influential work in the 1960s and 1970s, and in the 1980s several other authors began to build upon it in significant new ways. One of these authors was Werner Ulrich. Ulrich (1983) agrees that Churchman’s desire to sweep the maximum amount of information into understandings of improvement is *theoretically* sound, but also acknowledges that the need to take practical action will inevitably limit the sweep in process. He therefore poses the question, how can people rationally justify the boundaries they use? His answer is to develop a methodology, critical systems heuristics, which can be used to explore and justify boundaries through debate between stakeholders. In producing his methodology, Ulrich draws upon the later writings of Jürgen Habermas (1976, 1984a,b) concerning the nature of rationality. Habermas regards rationality as dialogical—and the tool of dialogue is language, which allows us to question. The basis of

dialogue is therefore open and free questioning between human beings. However, Habermas does not take a naïve line concerning dialogue: he acknowledges that it may be distorted through the effects of power. This may happen directly, when one participant coerces another, or indirectly, when participants make unquestioned assumptions about the absolute necessity for, or inevitable future existence of, particular social systems. To overcome these effects of power, we need to establish what Habermas calls an “ideal speech situation”: a situation where any assumption can be questioned and all viewpoints can be heard.

However, while Ulrich (1983) accepts the *principle* of Habermas’s understanding of critique, he nevertheless criticises him for being utopian. For all viewpoints to be heard, the ideal speech situation would have to extend debate to every citizen of the world, both present and future. This is quite simply impossible. Ulrich sees his task as the *pragmatisation* of the ideal speech situation, and a marriage between ‘critical’ and ‘systems’ thinking is the means by which this can be achieved. Truly rational inquiry is said to be *critical*, in that no assumption held by participants in inquiry should be beyond question. It is also *systemic*, however, in that boundaries always have to be established within which critique can be conducted. Indeed, Ulrich claims that both ideas are inadequate without the other. Critical thinking without system boundaries will inevitably fall into the trap of continual expansion and eventual loss of meaning (as everything can be seen to have a context with which it interacts, questioning becomes infinite). However, systems thinking without the critical idea may result in a ‘hardening of the boundaries’ where destructive assumptions remain unquestioned because the system boundaries are regarded as absolute.

An important aspect of Ulrich’s (1983) thinking about boundaries is that boundary judgements and value judgements are intimately linked: the values adopted will direct the drawing of boundaries that define the knowledge accepted as pertinent. Similarly, the inevitable process of drawing boundaries constrains the ethical stance taken and the values pursued. Debating boundaries is therefore an ethical process, and a priority for Ulrich is to evolve practical guidelines that can help people steer the process of critical reflection on the ethics of drawing system boundaries. For this purpose, Ulrich (1983) developed a list of twelve questions that can be used heuristically to question what the system currently is and what it ought to be. It is important to note that some of these questions relate to who should participate in discussing boundary judgements in the first place, meaning that there is always the possibility for people to enter or leave discussions.

There is a key guiding ideal embedded in this work. According to Ulrich, if rationality is dialogical, plans for improvement should, in principle, be normatively acceptable to all those participating in a given dialogue. In practice, this means (if at all possible) securing agreement between those designing an improvement and those affected by it (of course, judging who or what is actually involved and/or affected already involves making a boundary judgement). When agreement is not secured, citizens who disagree with implementing the ‘improvement’, and who are affected by it, may legitimately use Ulrich’s twelve questions in a “polemical” mode. This means building an argument with which to embarrass planners in future public debate by exposing the limited nature of the expertise they lay claim to.

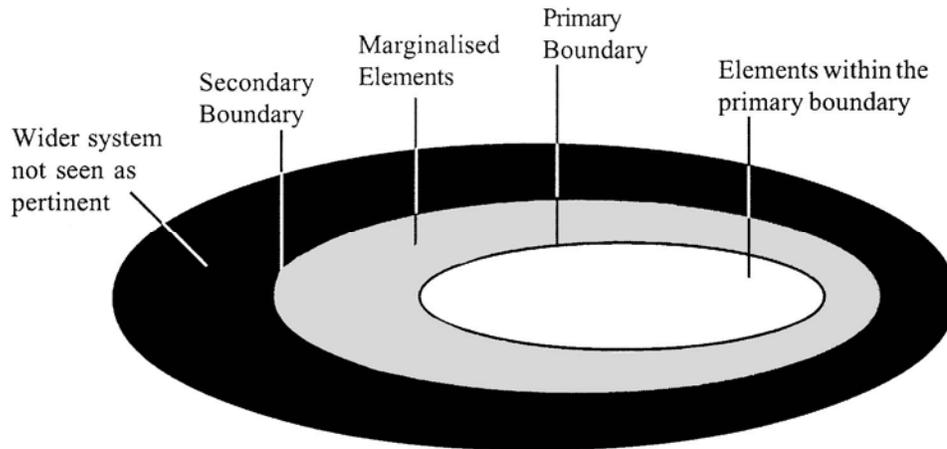
We have now seen how Ulrich has built on and developed the work of Churchman. In a similar fashion, Midgley (1992a) has extended the work of Ulrich. For both Churchman and Ulrich, the question of what system boundaries are to be used in an analysis is essentially an ethical question because value and boundary judgements are intimately related. Midgley (1992a) uses this insight as a starting point to ask what happens when there is a conflict between different groups of people who have different ethics (values in action) relating to the same issue, and thereby make different boundary judgements.

If one group makes a narrow boundary judgement and another makes a wider one, there will be a *marginal* area between the two boundaries. This marginal area will contain elements that are excluded by the group making the narrow boundary judgement, but are included in the wider analysis undertaken by the second group. We can call the two boundaries the *primary* and *secondary* boundaries (the primary boundary being the narrower one). This is represented visually in Figure 1.

Midgley argues that, when two ethical boundary judgements come into conflict, the situation tends to be stabilised by the imposition of either a *sacred* or a *profane* status on marginal elements. The words “sacred” and “profane” mean valued and devalued respectively. This terminology has been borrowed from the tradition of anthropology, exemplified by the work of Douglas (1966), and it should be stressed that they are not meant in an exclusively religious sense, but refer to the special status of a marginalised element. The imposition of either a sacred or profane status on marginal elements stabilises a conflictual situation in the following manner. When marginal elements become profane, the primary boundary and its associated ethic is focused upon and reinforced as the main reference for decision making. People or issues relegated to the margins are disparaged, allowing the secondary boundary to be ignored. Conversely, when marginal elements are made sacred (and thereby assume a special importance), the secondary boundary and its associated ethic is focused upon and reinforced.

However, this is not the end of the story. Not only do ethical tensions give rise to sacredness and profanity, but this whole process comes to be overlaid with social ritual. Midgley (1992a) defines ritual as “behaviour, in whatever context, that contains certain stereotypical elements that involve the symbolic expression of wider social concerns” (see Douglas, 1966, and Leach, 1976, for further thoughts on the relationship between ritual, sacredness and profanity). An observation of the presence of ritual can tell us where sacredness and profanity might lie, and hence where ethical conflicts related to marginalisation might be found. In order to make this clearer, the whole process has been represented diagrammatically in Figure 2.

Figure 1: Marginalisation

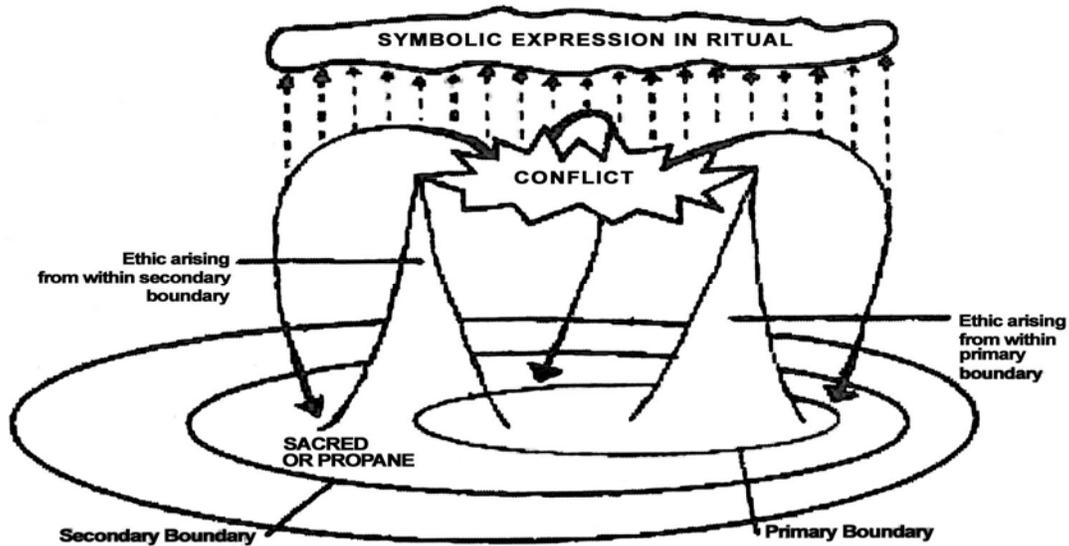


In Figure 2 we see one ethic arising from within the primary boundary, and another from within the secondary. These come into conflict—a conflict that can only be dealt with by making one or other of the two boundaries dominant. This dominance is achieved by making elements in the margin (between the primary and secondary boundaries) either sacred or profane. The whole process is symbolically expressed in ritual which, in turn, helps to support the total system.

While Figure 2 shows the secondary boundary *containing* the primary boundary, creating a marginal area between the two, a similar situation of marginalisation also arises when two boundaries *overlap*: the common area may be subject to dispute and can become either sacred or profane in the same manner. See Yolles (2001) for an illustration.

Of course, the ‘system’ represented in Figure 2 is a model, and like all models it does not fully express the complexity of the many value and boundary judgements that interact dynamically in social situations. A discussion of this complexity, and practical examples that clarify the process further, can be found in Midgley (1992a, 1994, 2000) and Midgley et al. (1998). One particularly important point about the complexity lying beyond the model should be borne in mind, however: this kind of ‘system’ does not exist in isolation—it is ‘held in place’, or granted integrity, by virtue of the fact that it expresses wider struggles between competing discourses¹¹.

Figure 2: Margins, ethics, sacredness, profanity and ritual



From the theory of boundary critique we can derive some questions that can be asked during IS planning:

- What people and/or issues are being privileged?¹² What *should* be privileged?
- Do different people have different views about what is, or should be, privileged? If so, what does this tell us about our own and other people's concerns and values?
- What people and/or issues are being negatively marginalised? Should they be?
- Do different people have different views about what is or should be negatively marginalised? If so, what does this tell us about our own and other people's concerns and values?
- Are there people and/or issues that some people value highly and others devalue? If so, what does this tell us about our own and other people's concerns and values?
- When answering these questions, have you considered people and things that might be affected in the wider system as well as those in the immediate environment?
- Are there people and/or issues that are currently excluded from analysis (not just marginalised) that should be included because they have a significant impact on what you are observing?
- Are there recurring activities, interactions, conversations, ways of dressing, etc., which might be seen as expressions of our own and/or other people's concerns and values? If so, what do these tell us about them? Are they problematic, and from whose point of view?
- What are the possible consequences of the privileging and/or negative marginalisation of people and/or issues? Are they problematic, and from whose point of view?
- What are the possible consequences of the existence of the different concerns and values identified? Are they problematic, and from whose point of view?

- Are there significant interactions between the possible consequences identified (e.g. local and wider consequences can sometimes interact)? Are they problematic, and from whose point of view?
- What might be the wider implications for society if these plans are implemented, both in the short term and for future generations? Are they problematic, and from whose point of view? What *should* the wider implications be?
- Who is being given the opportunity to answer these questions? Who *should* be given this opportunity?
- Who is hearing the answers? Are they hearing all or only some of the answers? Who *should* be hearing them?

Earlier we discussed problematic issues of social inclusion in the information society. Some writers have naïvely assumed that the mass introduction of ICTs will automatically result in the empowerment of individuals and nations within the global information economy. Because boundary critique helps us focus on issues of marginalisation and exclusion, it enables us to begin to explore these issues in a more critical manner.

Boundary critique also indicates the value of a deeper form of participation in IS planning than the one usually practised. Genuine participation cannot be established on the basis of a pre-set organisational agenda (Gregory et al., 1994). People also need to be free to sweep in wider concerns, including how to improve the society in which they are living (which may, of course, have important implications for the role of the organisation). Ideally, the process of boundary critique should be continuous: as new boundaries are identified over time, the understandings of participants should evolve, and so should IS plans.

The focus of IS planning is therefore shifted from concerns that primarily reside within the organisational boundaries (e.g., efficiency, productivity, control) to more people-oriented concerns that might not be directly related to the use of information or technology but are still important to surface. This does not mean the wholesale abandonment of narrower organisational concerns (we certainly do not want efficiency and effectiveness to be forgotten), but it does mean seeing them in a wider context. In so doing, the goals (even the whole mission) of the organisation may be reviewed for the benefit of the organisation itself, the individuals within it, the wider community and future generations.

Having presented boundary critique we now move on to discuss the theory of autopoiesis, which introduces another set of concerns that we believe are relevant to IS planning.

6. The Theory of Autopoiesis

While boundary critique is essentially a *social* theory, autopoiesis provides a *biological* explanation of how human beings interact as living systems¹³. A full description of this theory is beyond the scope of this paper, but more detailed accounts can be found in Maturana (1988), Maturana and Varela (1992) and Mingers (1995).

The word ‘autopoiesis’ can roughly be defined as ‘self-producing’ (Mingers, 1995). An autopoietic system is one that seeks to maintain itself and, when it interacts with its environment, it takes actions that are determined by its current structure. The structure of a system is its arrangement of components in such a way that its organisation (that which

gives it identity) is maintained. The structure of a system changes over time, but within limits laid down by its organisation. This cannot change without the system losing its identity as a self-producing entity – in other words, without it dying. Of course, the structure of an autopoietic system changes over time due to the flow of its interactions with its environment.

What this tells us about human beings is that we seek to maintain ourselves as living beings through our interactions with our environment, but that at any single moment our actions are limited by our knowledge and understanding. However, our knowledge and understanding does change over time: we are capable of learning. This is arguably non-controversial. However, an important further insight that derives from the theory of autopoiesis is that, because a human being's actions at any moment are determined by his/her structure, the environment can only 'trigger' changes, *it cannot cause them*. Causation is always from inside a person, and even a 'trigger' will only have an effect if the person is already predisposed to react to it. Maturana and Varela (1992) therefore say we are able to "see what we see, and what we do not see does not exist" (p.242)¹⁴.

Also, Maturana (1988) explicitly considers the role of language. As social animals, human beings not only *act*, we also strive to *co-ordinate* our actions. Language helps in this process: it allows us to *co-ordinate our co-ordinations of actions*. We act in co-ordination with others, and language supports the co-ordination of these co-ordinations.

Interestingly, when Maturana and Varela talk about co-ordinations of actions, they have something very specific in mind. A person can only react to outside forces on the basis of his/her current structure (maintained by, and maintaining, her organisation, or identity as a system). Nevertheless, s/he is organisationally predisposed to identify recurrent patterns of interaction and adapt his/her structure accordingly, thereby giving rise to habitual responses. When a person and an aspect of his/her environment (which may or may not be another person) have a recurrent relationship, sufficient habitual responses are set up to allow us to describe the relationship between the person and the aspect of his/her environment as *structurally coupled*. Structural coupling, when taking place amongst a group of people, allows the working out of co-ordinations of actions in ways that are of mutual benefit to all those concerned. Of course, language may facilitate and strengthen this process.

Language also forms "rational domains" in which people participate. Over time, a particular use of language to co-ordinate co-ordinations of actions may become more and more elaborated, allowing people to exist in very subtle, well-coordinated, structurally coupled relationships. Thereby, whole human activity systems, or domains of action, are created. People may actually participate in a variety of domains of action, but the movement of individuals from one to another – and hence from the use of one form of language to another – crucially depends on the invocation of emotion. According to Maturana (1988), emotions make individuals switch from one 'rationality' to another. All rational arguments are "braided" with emotion (in other words, forms of language come to be associated with emotional states within individuals), so when a particular emotion is experienced, this triggers a switch to the appropriate, associated rational domain (or elaborated system of language). This is why an appeal to the emotions can have such a powerful effect in terms of changing people's ways of thinking (Bilson, 1996, 1997).

Indeed, the relationship between rational domains (forms of language) and emotion is two-way: the use of a particular ‘language game’ associated with an emotion will give rise to that emotion, altering the set of rational domains that become available to participating individuals at that moment.

Human beings, then, are self-producing organisms who co-construct their realities through language. It is because of the role of language in the co-ordination of co-ordinations of actions that *conversation* is so important. Individuals flow through different domains of action by moving between different networks of conversations, guided by their emotions (Maturana, 1988). Conversations end when the emotional commitment to remain engaged in them ends.

In Maturana’s view, people share a common emotion: love, or mutual respect for the ‘other’ as an equally valid human being. However, love is not universally extended to all people at all times. In conversations, the braiding of emotion and reason helps to specify who is the ‘other’ to be concerned about at any particular time, and what actions should be taken towards him or her. These concerns and/or actions may be loving, instrumental, exclusionary or even violent. However, a true *social* system, as defined by Maturana, is indeed based on love (mutual respect) for others.

Now, the theory of autopoiesis is descriptive (concerning the nature of human beings), but it also has a normative dimension: it is *prescriptive* about the right course of action for human beings to follow. Because it is love that enables mutual understanding during conversations, Maturana argues that we have an ethical responsibility when we engage in conversations to do so with an attitude of love—listening to the ‘other’ as an equally valid person. To do anything less is to negate the value of the ‘other’ as a fellow human being.

7. Towards a Critical Approach for IS Planning

Bearing in mind the above ideas of autopoiesis and boundary critique, an approach can be defined to support inquiry into IS planning processes. This approach combines both of these theories and promotes openness towards the inclusion of different people and issues, focusing on the way of life of individuals, groups, organisations and societies (with or without the support of information technology). The main tenets of this approach follow (more details can be found in Córdoba, 2002).

It can be said that human beings flow in language with others. In each domain of interaction there are certain concerns – sets of distinctions (co-ordinations of co-ordinations of actions) which are created and re-created by each individual in interaction with others. Maturana and Varela (1992) argue that distinctions emerge from the *way of life* of individuals. Some of these distinctions can be considered *concerns for action*, which people create and re-create. Hence there could be as many concerns for action as domains of interaction through which individuals flow. It is the sweeping in of a diversity of people and their concerns that lies at the heart of our approach.

This is motivated by the ideal of love, or mutual respect. All concerns should, in principle, be considered equally legitimate because they come from people taking part in different domains of action, and no one domain is intrinsically superior to another. However, this

does not mean that people's concerns, and the actions that may follow from them, are all equally desirable. We need to take the concerns of fellow human beings seriously, but concerns are always relative to the local and temporary interactions that individuals find themselves in. People's understandings are therefore limited, and individuals can learn about some of the limitations of their concerns through dialogue. So, the ideal situation involves listening to others; taking account of their concerns; developing a shared understanding of how their concerns may or may not fit with ours; exploring the possible strengths and weaknesses of different concerns; looking for synergies; and working towards action in partnership.

However, this is very much an *ideal*. Because we inevitably have to choose who we are going to involve in discussions at any moment, and what concerns will be central and what will be peripheral, we need boundary critique. This recognises that limits to the inclusion of both people and issues are imposed through value judgements. So, if limits are inevitable, but we still want to act in a spirit of mutual respect, we have an obligation to think carefully and critically about the consequences of the different boundary judgements (both locally and more widely) that frame people's concerns. Boundary critique also allows us to transcend a limited set of concerns by exposing new possibilities for the inclusion of people and issues that might not have previously occurred to any of the participants involved in debate.

The identification of initial concerns in IS planning can lead to explorations of who should be involved, what other concerns might be legitimate, and how these explorations should be pursued in practice. We call this approach 'critical' because it emphasises the importance of both self-awareness and reflection by participants on issues of concern emerging during the IS planning process (Clarke and Lehaney, 1997a,b; Warren, 2000; Córdoba et al., 2000). Also, because local conditions of marginalisation tend to mirror wider discourses in society (many of which can be viewed as ideological), *ideology critique* is important (Gregory, 1992, 1994, 2000). Finally, our approach is critical because it encourages the application of boundary critique to the choice and/or design of *methods* for IS planning. Sweeping in a variety of concerns, and understanding their contexts in different ways, provides a starting point for considering which methods might be most appropriate to structure a way forward (also see Midgley et al., 1998; Midgley, 2000). The approach aims at fostering a communication process in IS planning, allowing an on-going enactment of meaning between participants (Walsham, 1993). However, the concerns to be included as legitimate go beyond those usually entering IS planning processes – essentially those that are directly connected to the application of computer information systems. In principle, debate may stray into any territory. In practice, however, limitations will emerge through the use of boundary critique – but the point is that these limitations are not pre-determined.

Having said this, treating others with mutual respect involves valuing their starting points in debate. Some people's starting points *will* primarily be concerned with information systems – especially those commissioning an IS planning exercise, otherwise it would not be labelled as such. In most contexts it is also the case that IS planners are not working with a blank canvass: there are current and/or potential information systems initiatives already in place. Therefore, a task that is open to practitioners is to support people in

building a bridge between what currently exists and what is going to be needed to address the wider set of concerns being swept in. To achieve this, different forms of communication between people can be promoted in ways that enable the avoidance of duplication. It is also important, where possible, for those responsible for existing initiatives to evaluate new concerns in dialogue with others rather than have these imposed without debate. Mutual respect involves valuing what people are currently committed to as well as the new concerns being introduced.

The idea is to create an *ongoing* IS planning process which meaningfully interrelates concerns about information systems with surrounding issues – and which can depart from IS planning altogether when appropriate. After identifying an initial set of concerns using boundary critique, it may be valuable to draw upon some of the existing planning methods from the IS literature to define specific initiatives for action (see Midgley, 2000, for details of how methods may be chosen and creatively mixed in practice). Further boundary critique can then enhance the scope of the initiatives as they are developed. *Iteration* between boundary critique and planning is encouraged.

It is not mandatory to address all concerns (including IS-based concerns) if, through boundary critique, people deprioritise them. It is usually the case that more concerns are initially swept in than can be dealt with through the construction of specific initiatives. The point is to *consider* the widest possible range of concerns before choosing paths for action. This calls for avoiding the imposition of a single point of view or single set of concerns – including the concerns of practitioners and/or IS experts – that may prematurely narrow the IS planning process.

8. Methodology

Having made a general case for a critical perspective on IS planning, we now present the specific methodology we have developed. A ‘methodology’, as we understand the term (following Checkland, 1981; Midgley, 2000; and Jackson, 2000), is the set of theoretical ideas that justifies a particular approach and/or the use of a particular method or methods. A ‘method’ is a technique, or set of techniques, designed to achieve a specific purpose.

Our methodology is composed of two main phases:

- *Distinction*, in which different participants and their multiple concerns are identified.
- *Dialogue for Improvement*, in which the concerns identified are discussed by participants to see if some of them can be transformed into concrete action, with or without information systems, in order to improve the way of life of people (those directly involved, and those potentially affected in the wider community).

These two phases are iterative. New concerns identified in the distinction phase might have an impact on what improvements are going to be discussed. Also, reflections on potential improvements might raise issues that take us back to distinguishing new participants and/or concerns. These phases are essentially two ‘lenses’ through which a situation can be appreciated – they are not phases to be enacted one after the other in a linear fashion. They

emphasise either identifying concerns (distinction) or structuring debate in the interests of action (dialogue for improvement), and each will have implications for the other.

During both phases, an on-going *boundary critique* needs to be conducted to address issues of inclusion, exclusion and marginalisation of people and issues. This should affect the *content* of debates, *who* is involved, and *how* debate is structured (the choices of methods)¹⁵.

Inevitably, in any actual IS planning situation, there are practical constraints (institutional, financial, cultural, personal, etc.) that limit boundary explorations and the plans that can be considered feasible. When these constraints are encountered, boundary critique (linked into more traditional planning methods) can be particularly useful because it enables people to do two things. First, to explore whether the constraints might, in fact, be overcome despite initial impressions (by shifting the boundaries of analysis, problems sometimes begin to dissolve). Second, if it seems that certain constraints do have to be accepted, it gives people reasons for this that can then be communicated to others who might need convincing.

Our methodology can be summarised in Figure 3 (on the following page). Figure 3 represents IS planning as an on-going, iterative process allowing people to move between distinction and dialogue for improvement, drawing upon boundary critique for both. The methodology also allows the mixing of methods to address the identified concerns in a flexible and responsive manner: whole methods, parts of methods, or sets of methods can be chosen and/or designed through dialogue between the facilitator and those involved (Midgley, 1990, 1997b, 2000).

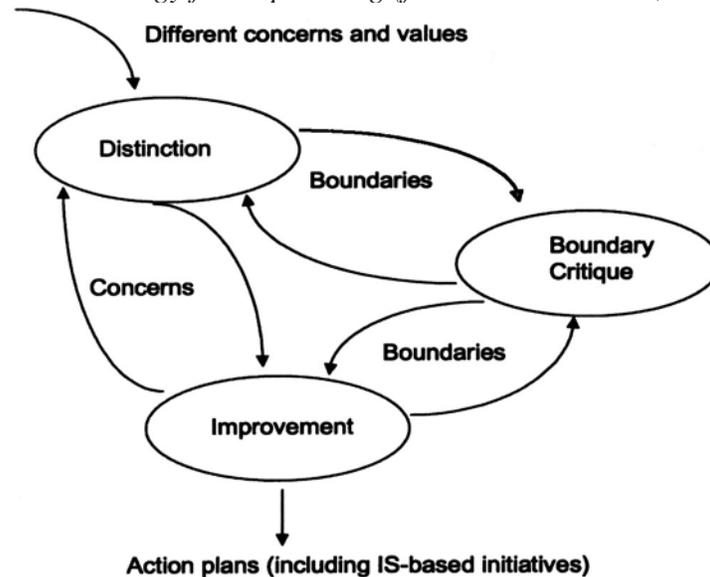
9. Applying the Methodology at Javeriana University

Having described our methodology, we now go on to present its application in an IS planning project at Javeriana University, Colombia. This is inevitably a highly abbreviated presentation. For more details, see Córdoba (2002). After we set out what happened in the project (from our point of view), we reflect back on the methodology and its application. This reflection gives rise to some issues of concern and some ideas for addressing them. In the account below, the names of participants have been disguised to preserve confidentiality.

The initial proposal for the project was negotiated between Javeriana University (Colombia) and the University of Hull (UK). One of the authors (José Córdoba) spent a year at Javeriana, supported at a distance by the other author (Gerald Midgley). José facilitated the IS planning in partnership with an established academic staff member at Javeriana who had specific knowledge of both IS issues and systems methodology. They were also given some administrative support by the organisation. A document specifying the proposed methodology (including the phases of distinction and dialogue for improvement, and the value of boundary critique) was circulated to the senior management of the University, and this was approved before the project commenced. We should note that the document was explicit about methodological issues of social inclusion, saying that we wanted to talk with a wide variety of stakeholders, and we related this to the mission of the University to contribute to the improvement of Colombian society. Our document discussed some

theoretical issues too: how new concerns emerge from the interactions between individuals, and how boundaries are established that privilege some people and issues over others during planning. The idea of starting with a wide set of concerns was given prominence.

Figure 3: A critical methodology for IS planning (from Córdoba et al., 2000)



Soon after the project began we realised that, although our methodology had already received senior management approval, the language we had used in our document constituted a barrier to effective communication with many of the people interested in taking part in the project. For practical purposes, ‘boundaries’ was replaced by ‘what is being taken into account’ and ‘limits for action’, and ‘way of life’ was rephrased as ‘sets of actions in a particular context’¹⁶. We found it necessary to regularly emphasise to participants that concerns about their way of life need not necessarily be related to the use of information technology, and they did not have to be able to offer an ‘expert’ opinion to make a useful contribution. People tended to assume that the focus was going to be information systems in the narrow sense, and that their ‘ordinary’ point of view would be less important than ‘expert’ testimony. Simply countering these assumptions in an introductory letter was insufficient: we had to explain the rationale of the project in some detail before people realised why their wider concerns were going to be of value.

10. The Distinction Phase: Interviews and Workshops about People’s Concerns

In developing the distinction phase, we decided to conduct personal interviews and group workshops to identify concerns. These two activities allowed the researchers to converse directly with individuals both within Javeriana and outside it. A person’s concerns could be related not only to his/her job or main activity in life, but also to his/her participation in different ‘scenarios’ or domains of action. Our starting point was that all concerns should be considered as equally legitimate: it would be the task of everybody involved to prioritise them later in the project. Having said this, however, we did not shy away from our part in

the process. We did not claim neutrality. We presented ourselves as participants *in* the situation, rather than observers *of* it. This gave us two explicit roles: (i) to take responsibility for designing the sweep-in process, ensuring that marginalised voices were included; and (ii) to contribute (but *not* privilege) our own concerns. Given an expectation laid upon us by some participants that we would act as expert consultants rather than facilitators, it was never going to be easy to introduce our concerns without privileging them. However, we believe that reflecting on the issue helped us deal with it more effectively than if we had pretended to some form of neutrality (also see Gregory and Romm, 2001, for further thoughts on non-neutral ‘critical facilitation’).

Three people were usually present in an interview: the interviewee; the interviewer; and a ‘critical friend’. The critical friend was either a second member of the research team or a member of the clerical support staff. His/her role was to take notes and also, when the interview was complete, to facilitate a critical evaluation of it. S/he would attempt to identify moments when the interviewer might have imposed his/her own agenda, and raise any concerns s/he felt had been left out of the discussion. In this way, the interviewers received continuous feedback on their performance in managing the boundaries of the debate.

Within each interview, in order to create a friendly atmosphere and to support interviewees in connecting with their own way of life, a selection of pictures (from newspapers and magazines) was spread out¹⁷. These represented a variety of personal, community, national and international issues that might be of potential concern. The idea was that these would remind interviewees of issues that might not otherwise be remembered in an interview (the interview situation is, after all, relatively detached from wider social concerns). Each interviewee was asked to select pictures that were meaningful for his/her way of life¹⁸. After a selection was made, a dialogue was initiated. This was structured around particular questions:

- Why do these pictures matter to you?
- What do they represent in terms of your own concerns or desires?
- What personal values do you see reflected in the pictures?
- Are there any ethical conflicts that could be identified from the pictures?
- What about [*related concern*]? Do you think it is important?

These questions were intended to tease out concerns and the ethical issues they could raise for the interviewees and for others. In dialogue, the boundaries of the identified concerns were explored with the idea of finding ‘blind spots’ – people and issues that could be considered relevant but had not yet been identified. We also used the dialogue to explore whether there might be primary and secondary boundaries (and conflicting values) in play, indicating the possible existence of issues and people so far marginalised from mainstream discourses in Javeriana and in Colombian society more widely.

Reflection on the boundaries of our methodology was also encouraged. For instance, some people expressed disagreement with the use of pictures and others disliked having a discussion that was not based on expert knowledge. In response to this feedback, the

research team decided to make the use of the pictures optional. However, we continued to promote an open discussion about people's concerns, treating 'expert' and 'non-expert' testimony equally, as to have sought only 'expert' knowledge would have resulted in some significant exclusions and marginalisations. We were conscious that this meant privileging our own methodological concern over others, and this is an issue that we will take up later in the chapter when we discuss the ethics of the practitioner.

In total, twenty personal interviews were conducted during the distinction phase. The first eleven (six administrators, three academic staff and two project leaders) were suggested by our contacts in the University. This list was then extended in consultation with the first eleven interviewees (we added six more administrators, one member of the Jesuit community working at Javeriana, and two more academics). In this way the research team rolled out the boundaries of participation (following the method recommended by Midgley and Milne, 1995).

In addition to the twenty individual interviews, six workshops were also held. These basically used the same format as the interviews (choosing pictures, identifying concerns, and discussing them using the trigger questions). The idea of these workshops was to significantly widen the boundaries of participation in the distinction phase, especially to stakeholders outside the University. We held workshops with students, business people in the community, and 'citizens' more generally (the citizens' workshop drew in people from a variety of sources – see Córdoba, 2002, for more details).

For the workshops, the format of the individual interview (described above) was adapted. The participants were divided into subgroups of three people, and they rotated the roles of interviewee, interviewer and critical friend. After everybody had been interviewed, the participants presented the outputs to the group as a whole. The researchers then summarised the main findings and also facilitated challenges to some of the assumptions being made regarding the way of life that people either already had, or wanted to attain, both at Javeriana and in the wider Colombian society.

At the end of the interviews and workshops, the majority of participants expressed their willingness to continue with the project. Having defined a series of concerns, values, boundaries and potential actions to improve the way of life of a diverse variety of stakeholders, the dialogue for improvement phase was started.

11. The Dialogue for Improvement Phase: IS Planning to Enhance the Way of Life at Javeriana

In practice, we called this the 'design phase' because 'design' seemed more intuitively appealing to stakeholders than 'dialogue for improvement'. The research team devised a strategy to involve people in considering different forms of action. We took into account the willingness (or otherwise) of different people to participate in this phase, and also their current engagements and commitments: people at Javeriana were already taking part in relevant conversations and actions. The strategy involved developing two paths of intervention that we called 'design exercises' and 'critical engagements'. These are explained below.

12. The Design Exercises

The design exercises used systems methods ('holistic' planning and problem solving methods) to support participants in defining a series of proposals for action to improve the situation at Javeriana. These exercises also aimed at surfacing possible implications of adopting particular boundaries and privileging certain people and issues when deciding on actions to be taken. We sought to promote a critical attitude concerning potential marginalisations that could follow from the implementation of plans.

Because most of the design work was to be undertaken by groups in workshops, bringing together diverse sets of stakeholders, we anticipated that significant synergies could be gained through the sharing and collective critique of concerns. Also, if people wanted to include new concerns, not derived from the initial distinction phase, we made it clear that they were perfectly at liberty to do so they could return to working on distinctions at any time. Iteration between 'distinction' and 'dialogue for improvement' was therefore encouraged. All those who took part in the first phase were invited to participate in this new phase.

In the design exercises, we proposed that participants should select, from all the concerns, values and beliefs identified previously (some of which were about what currently is, and others about what ought to be the way of life at Javeriana), a set of three or four particularly pertinent issues. We then drew upon some of the methods from soft systems methodology (Checkland, 1981; Checkland and Scholes, 1990), which have been applied to IS planning on previous occasions (e.g., Lewis, 1994; Checkland and Holwell, 1998). First, some "relevant systems" to address the pertinent issues were defined by participants. The term "relevant system" refers to a coherent set of purposeful human activities that people believe might contribute to the improvement of a situation (Checkland, 1981). Participants were then encouraged to develop their understandings of these relevant systems by discussing possible "root definitions" of them. A root definition is a concise description of the core purpose of a relevant system (Checkland, 1981). The components of the root definition can be expressed in the mnemonic CATWOE, as follows:

Customers: Beneficiaries and those who might be harmed by the proposed activities.

Actors: Those involved in making the system work.

Transformation process: The identification of inputs to be transformed into outputs (e.g. people not acting in solidarity to be transformed into people acting in solidarity).

Worldview: The set of concerns, including values that make a transformation meaningful.

Owners: Those who can stop the transformation from happening (these are not necessarily owners in the financial sense of the term).

Environmental constraints: Things that have to be taken as given because they cannot, or should not, be under the control of the actors.

Based on the root definitions, more detailed proposals for human activity systems were developed in two ways¹⁹. The first way, used in some of the workshops, was to develop "conceptual models" (Checkland and Scholes, 1990): sets of human activities linked by arrows to show their logical connections. The second way, used in other workshops, drew upon some of the ideas in Ackoff's (1981) methodology of interactive planning. Ackoff

talks about defining the “ideal properties” of a system. This means thinking about what a system should ideally be like, given only three constraints:

- Technological feasibility (no impossible technology should be proposed);
- Operational viability (the system should be sustainable in relation to its environment); and
- Adaptability (the system should be able to respond to changing circumstances).

In addition to these three constraints, we also proposed that any system should promote the general values of co-operation and continuous improvement. These values are explicitly enshrined in the mission and philosophy of Javeriana University, and we found that all the stakeholders shared them.

When elaborating root definitions and conceptual models, or defining ideal properties for human activity systems, the research team played a critical role by encouraging reflection on the boundaries that emerged. We asked questions like:

- Who else should be included?
- What else should be considered as important?
- What about [*issues or people*] that you have said are not important? Why is this? Is there another point of view, and should you listen to it? If not, why not?
- Who and what will be directly or indirectly affected by doing things this way? What does your answer suggest you should do?
- What kind of information technology support could help in achieving the desired outcomes?

With the above questions new issues arose as marginalised elements were considered, taking people back to their work on making distinctions. This work then fed forward to changes in the set of relevant systems and agendas for action defined by participants.

13. Critical Engagements

The ‘design exercises’ represented just one of the two paths for intervention taken in the improvement phase. The other path involved ‘critical engagements’. These consisted of a series of conversations about IS planning projects that were already taking place at Javeriana, and whose purposes seemed to be relevant to the concerns identified in the distinction phase of our work. The research team was invited to participate in meetings about the following initiatives that were already underway:

- Implementing internet access to library services.
- Designing and implementing a new digital library system, allowing the continual exchange and updating of information.
- Designing a new ‘Information Technology in Architectural Design’ education programme.
- Re-designing the curriculum for the ‘Computer Science and Systems Engineering’ programme.

The research team took the explicit role of ‘critical friend’ in these meetings: we adopted an attitude of listening, facilitating and challenging as well as directly contributing. We started by gaining an understanding of the current concerns that people had when taking part in each initiative. We then began to introduce other concerns coming from the interviews and workshops. This was a way of challenging taken-for-granted values and boundaries while still respecting the concerns of others, and it enabled wider understandings of what it might mean to improve the situation at Javeriana to develop. Some of the questions that guided our interventions were:

- Why is this concern or issue so important?
- Have you considered other issues or alternatives for action (whether or not related to the use of information technology)?
- What about the concerns and groups of people that do not seem to be represented in your plans? Have you considered them? Should you do so?
- What additional actions would be suggested by including certain concerns in your plans?
- What might be the implications for people directly or indirectly affected by the actions you have defined?

In total, the research team took part in six meetings about these initiatives (one meeting per initiative, plus two additional meetings on two of the initiatives). After the first round of meetings, it became apparent that the participation of the research team was having some effects. The people working on two of the initiatives said that we had made a valuable contribution and invited us back for another session. In contrast, the leaders of the other two initiatives decided we should not return. In the latter two cases, despite the expressed intention of the research team to promote improvement, co-ordination and mutual understanding as well as challenges to taken-for-granted boundaries, there was a situation in which the issues we introduced did not sit easily with the existing conversations, and people resisted contemplating changes. A view was also expressed by people in one group that we should be acting as IS experts, making a summative report with recommendations rather than listening to a variety of views.

Was it that our concern with ethics was not fully shared by other people? What should we have done? Should we have allowed the dominant conversations to flow unchallenged in the name (following Maturana, 1988) of respect for the others present? Or were we right to continue with the role of ‘critical friend’ *also* out of respect for others – this time those excluded from participation? These are essentially ethical questions that gave rise to a new tranche of research on power and ethics following completion of the project. However, before we address these questions in more detail, we present the final stage of the project.

14. Presenting the Findings

As the end of the dialogue for improvement phase approached, the research team decided to gather together the different findings of the project and proposals for action. The idea was to simultaneously (i) make a record of the outputs for all the participants to draw upon after we had left, and (ii) present a final report to the senior management of the University (backed up with a meeting to discuss it). Both were a result of what we saw as our ethical

commitment to those who had participated in generating the plans. By writing up the material for the participants, we were handing back the plans as a resource for them to use. The information we had gathered might also be important for particular departments in the University (e.g. Computer Science, Research Supervision and Library Services). By presenting a report to the senior management (and meeting with them to discuss it), we were facilitating implementation by ensuring that the results of the IS planning were read by those with the highest level of decision making power. In common with many other Jesuit institutions, Javeriana University is a strongly hierarchical organisation.

It is worth noting that, when the research team met with the senior management, they were very supportive of the work we had done. Indeed, they wanted the team to stay together for longer to facilitate movement towards implementation. This again raised an ethical issue because we noticed a sense of dependence on us, despite the fact that we had emphasised throughout the project that the plans belonged to the participants who generated them – they were not our own. We argued that, if the implementation was going to be sustainable, people at Javeriana needed to take the lead and assume responsibility for it – and the fact that one member of our research team was a lecturer in the University would make the transition relatively easy. This was an ethical issue because we could have been flattered by the invitation to stay on, accepted it, and thereby deepened the dependence on us. Explaining this to the senior management, we brought the project to a close.

15. Reflections on the Methodology

In this and the next two sections we present some reflections on the project, leading (shortly) to some further thoughts about ethics and power. We should note that these are *our* reflections and do not necessarily represent the views of people at Javeriana²⁰. We focus on three aspects: our methodology, the surfacing of ethical issues, and critical systems thinking.

We believe it is reasonable for us to claim that our methodology and methods allowed the emergence of issues not often addressed by traditional approaches to IS planning. It helped people identify a *variety* of concerns, including some from stakeholders (such as external business people and citizens more generally) who might not normally be consulted. Particularly, it supported people in exploring the assumptions (boundaries and values) that flowed into their improvement initiatives, including those related to the use of information systems. Explicitly refusing to base participation on IS expertise was *partially* successful in establishing the principle that people should be listened to and respected as human beings equally concerned within the social context. The majority of the participants came to value this stance, but a minority withdrew from participation because of it.

In addition, the methodology supported people in translating their diverse concerns into meaningful paths for action. New initiatives were defined, existing ones were broadened, and people looked at issues of co-ordination across the whole network of initiatives. Importantly, some participants found that their existing information systems could help to address concerns without an expensive investment in new technology or even a detailed analysis of information needs – there was a consensus across stakeholders that they were adequate for their purpose. This is vital in the context of a University in a developing

country that has to function with fewer resources than most comparable institutions in the developed world. In the case of these 'good enough' information systems, future IS planning will need to be more of an exercise of co-ordination of actions and interactions than decision making on technology (at least in the short-to-medium term). This finding suggests that our methodology did not channel people down an unnecessary path of technological change, which in the context of IS planning in developing countries is, we believe, crucial.

16. Reflections on Ethics

However, during the application of our methodology, we encountered several situations where our own ethics clashed with the ethics of the participants (particularly the administrators). For example, some of the workshops gave rise to proposals for improving the evaluation of the social impacts of plans, and co-ordination between plans emerging from different functional units of the University. These were not seen as relevant by administrators, despite the concerns expressed by other participants about current problems with the University's planning processes. We were trying to enable an 'improvement' by facilitating the inclusion of issues that senior managers saw as difficult to address due to the fact that they were already fully committed to dealing with their existing concerns. It seems that all the debate and definitions of changes created a conflict between different ethical views about what to do. We should note that the administrators also saw this as an ethical issue: they did not confine themselves to the language of resources and feasibility. They argued that their own views should be supported for the good of themselves, the institution and Colombian society.

The situation can be characterised as a continuous tension between different ethical views expressed in both the stages of distinction and dialogue for improvement. By concentrating on ethical issues (linked with boundary judgements), our methodology made this tension an explicit focus for the participants. In our view, this was a good thing: it gave the participants opportunities to review their own assumptions in the light of ideas being proposed by others. Arguably, in most organisational scenarios, the assumptions of planners are not subject to much scrutiny from 'outside'. As a result, many ethical conflicts remain invisible or obscure to planners (if not to those disagreeing with them), and decisions are taken by those with the authority to do so with little explicit reflection.

However, dealing with ethical tensions is not easy. One of the facilitators actually felt the need to withdraw from participation in a workshop because of the unwillingness of the participants to even contemplate hearing the views of other people. This was a situation where no amount of discussion about the principles of our methodology would have helped: the participants were clearly and explicitly opposed to them. It fell to the facilitator to make an ethical decision about whether he should respect their disrespect for others (this disrespect could be seen as a 'legitimate' concern of theirs), or decide that the principles of the methodology should be privileged over these 'unreflective' concerns. He decided to take the latter course of action on the grounds that a wider set of concerns could be addressed, giving rise to better IS plans, if he remained faithful to the methodology in the face of this challenge to it.

This observation, that the facilitators found themselves embroiled in difficult and sometimes intractable ethical dilemmas, confirms that researchers, facilitators, interveners and practitioners (however they are labelled) are themselves ethical subjects. An 'ethical subject' may be an individual or a group of people. While a methodology can give participants opportunities for listening to others and transcending 'narrow' concerns, and people can point to the gains that may come from this, it would be naïve to think that this alone is always going to be sufficient to enable debate and meaningful change. There will sometimes be situations where people, for reasons they can justify to themselves, choose not to engage with others. In such situations, the facilitator (and other participants) may be placed in a position where they have to choose a path for ethical action that (temporarily) breaks with continuing communications.

17. Reflections on Critical Systems Thinking

The issue of ethics is, of course, not new to critical systems thinkers. The theory of boundary critique talks about the close relationship between ethical and boundary judgements (see earlier in this paper). Also, the need for the practitioner to play a pivotal role in facilitating ethical debate because of issues surrounding the exercise of power has been discussed over a series of writings by one of the authors (Midgley, 1990, 1997a,c, 2000). Indeed, Midgley (1997c) argues that systemic intervention needs to include options for political action and campaigning to address scenarios where one stakeholder group is blocking any consideration of the concerns of others. Direct communication is not always enough, and the intervener needs to make an ethical judgement about how to proceed. Likewise, Flood and Romm (1996b) talk about the importance of researchers explicitly addressing 'ethical dilemmas' and choosing methods that take account of power relations blocking communications between stakeholders.

However, reflection on the project reported in this chapter has made us realise that critical systems thinking (CST) practitioners might need to think more deeply about what it means to be an 'ethical subject'. The importance of the issue has been realised during the last twelve years of writings on CST, but further theoretical reflections may enable the production of better methodological guidelines to support interventions (including IS planning interventions). To make a start on this, we reviewed the literature on ethics and power after our project was finished and ultimately decided to concentrate our attention on the work of Michel Foucault (1977, 1982, 1984a,b,c,d, 1985)²¹. Foucault's ideas offer a detailed critical appreciation of the appearance of different ethical discourses in society, and the tensions that are continually played out amongst them. His thinking also offers the possibility of developing a form of self-critique (and a critique of the ethical concerns of others) that is relevant to the role of the IS planning practitioner²².

18. Foucault on Ethics and Power

In Foucault's writings, the search for a universal ethics (one with rules that are applicable to all people in all situations)²³ is abandoned in favour of a more local and strategic engagement in discourses about ethics. For Foucault, there are multiple ethical discourses in society that constitute what we are as subjects. These discourses are entangled in processes of knowledge production. Moreover, they are 'deployed' (to use one of Foucault's terms) via *power* relations. Ethics, knowledge and power are closely interrelated.

The concept of power in particular is essential in analysing how an ethical subject (whether an individual or a collective) has become what it is. In the works of Foucault one finds various definitions of power. These are related to the analyses that Foucault makes of different social phenomena (prisons, hospitals, human sexuality, etc.). The concept of power is an analytical tool, and in Foucault's view our understandings of tools can never be 'neutral': therefore, the meaning of the word itself can change according to the contexts in which it is deployed. Nevertheless, it is possible to make some general comments about its meaning by talking about the characteristics of power that seem to have remained relatively stable across all Foucault's writings. Power is primarily identified in relations between selves, or subjects. It can be seen as a grid of relations that allows some people to act on the actions of others (Foucault, 1977, 1982; Dreyfus and Rabinow, 1982). It is the operation of the political technologies throughout the social body. Power produces non-egalitarian but also mobile relations. It can be distinguished in a network of relationships characterised by asymmetry and inequality, and by unforeseen consequences of decisions taken in the network. The operation of power is spatially and temporally localised: no single 'grand theory' can explain all power relations. Power is dynamic, as relations between individuals change over time. Hence, "power is a general matrix of force relations at a given time, in a given society" (Dreyfus and Rabinow, 1982, p.186).

The operation of power is manifested at different levels: either targeting individuals, or guiding the conduct of groups and even societies. By the influence of power, subjects become 'normalised' in their actions: i.e. their possibilities for action are constrained by what is considered normal or acceptable by others. Nevertheless, there is still a degree of freedom for individuals: Foucault is most interested in the many situations where people have the possibility of taking particular paths for action, however difficult, but choose not to do so because of the actions of others. In these situations, questions of power and freedom are interdependent (Foucault, 1982). However, within power relations there is also *resistance* as well as acceptance. Resistance can be employed at different nodes in the network of relationships, and is manifested as both conflict and forms of *individualisation* – the creation by subjects of new aspects to their identities and ways of being. Individualisation can be normalising, making the subject conform to a given set of expectations, or it can be about preserving possibilities for resistance.

For Foucault, ethical (and other) discourses contribute to the production and/or reproduction of power relations. Ethical discourses can influence one another, but can also be held in tension. Each one has its own rationale. This makes any conflict between ethical discourses (exhibited by individuals and/or groups) better understood as a game of power

characterised by struggle and a striving for dominance (Foucault, 1984b,c; Vega-Romero, 1999).

On the mutual influence of power and ethics, Foucault has proposed that an ethical subject should be critical of those forms of individualisation that normalise or prescribe its ways of being and acting. He says:

maybe the target nowadays is not to discover what we are, but to refuse what we are... we have to imagine and to build up what we could be to get rid of this kind of political 'double bind' which is the simultaneous individualisation and totalisation of modern power structures (Foucault, 1982, p. 216).

The critical action and self-construction of a subject has to be considered in relation to the effects of power. Power is not a negative concept, only constraining action. Power can be used in a *positive* way to bring about change that the subject, and others it is engaged with, value. Individuals can still exert their judgement and utilise whatever is at their disposal to achieve specific ends. However, to do this critically, they should engage in self-reflection to make themselves more aware of how they are immersed in power relations, and how they use their own ethical rationales – linked into wider ethical discourses – for ends that are important to themselves (Vega-Romero, 1999). Foucault (1984d) offers some basic questions that can help individuals and groups to grasp the type of critique that could be developed around power, knowledge and ethics:

- 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?

Individuals or groups that want to engage in action with others towards the achievement of some collective ends could also make use of these questions. Of course, there will inevitably be tensions between individual and collective forms of the exercise of power which subjects need to be aware of and address (Vega-Romero, 1999; Córdoba, 2002).

In the last two sections of this paper (below) we offer some final thoughts on the implications of Foucault's understanding of ethics and power. First, we look again briefly at the theory of autopoiesis because Foucault's work has at least two important implications for it. Then we come back to the main focus of this chapter – IS planning.

19. Implications for the Theory of Autopoiesis

Foucault's notion of power raises the possibility of a new interpretation of Maturana and Varela's (1992) argument for individuals to promote co-existence. In our view, it is more than an observation that love, or mutual respect, is given to human beings in our biological make-up, so we should make use of it – it is a call to ethical action. By backing up their call with a biological discourse, Maturana and Varela are using power in a positive manner: they are drawing upon a source of knowledge (science) that is given strong credibility in many circles, thereby enhancing their ethical argument for changes in human relations. Of course, the dark side of biological and other scientific discourses is that they often require

normative or ethical injunctions to be hidden behind a veil of claims to scientific truth (Darier, 1999), and it is to the credit of Maturana and Varela that they refuse to ‘play the game’ in this way.

However, a major implication of our analysis for the theory of autopoiesis is that coexistence and collaboration are indeed important, but are not always easy or harmonious. Simply advocating openness to others is not enough: the advocacy of openness will often be in competition with other ethical discourses in local contexts. A more critical form of openness to others requires some awareness of the fact that the discourse of openness is itself a ‘player’ in the power relations negotiated by ethical subjects. This issue has already been raised in a different way earlier in the paper when we talked about how boundary critique can support people in establishing some locally acceptable limits to openness. However, introducing the insights from Foucault helps us gain a deeper appreciation of how interactions between human beings are characterised by tensions around power relations. Co-existence always acquires a local character depending on the power relations between people. Openness to others may be valued and promoted, but advocates of openness are not able to escape the conflicts that they will inevitably get into if this advocacy successfully begins to have an effect on the networks of power relations they are a part of²⁴.

20. Implications for IS Planning

In the context of the emerging information society, Foucault’s ideas should be useful for enhancing awareness of the forms of ‘identity’ that are being promoted through practices that incorporate information technology into the lives of individuals (also see Munro, 2001). Furthermore, they can cast new light on IS related discourses and help us reflect on how metaphors embodied in language can privilege some understandings over others. An example given by Munro (2001) is the ‘virus’ metaphor which connotes illness and danger. Therefore, when a person designs a ‘virus’ and ‘infects’ other people’s computers, it appears to be an unconscionable act. However, for some people, spreading viruses is more than malicious vandalism – it is an act of resistance against a network of power relations that they wish to undermine. Of course, the language of ‘viruses’ and ‘infections’ hides these political motivations.

Moving on to IS planning, the account of ethics presented earlier suggests that power is an important concept for the analysis of interactions between people. The ethical concerns that are swept into IS planning, with or without the support of a methodology like the one described earlier in this paper, can now be understood as arising from interactions between individuals and/or collectives as ‘subjects’ who are immersed in power relations. These power relations would seem to be inevitable, but subjects can still reflect on their relationships with others and define positive possibilities for action. There will be tensions between different ethical concerns – even between individuals belonging to the same group. Also, tensions can be encountered *within* individuals. This is because, in modern societies, most of us interact in multiple, sometimes conflicting domains of action (Córdoba et al., 2000). For ethical subjects, these tensions can be clarified during the planning process by using methods that support stakeholder groups in surfacing their views of ‘what is the case’ and ‘what ought to happen’ in relation to issues of concern (Vega-Romero, 1999). This

kind of comparison can produce possibilities for action, not only in relation to planning the future of an organisation or social system, but also in relation to the self-understanding and way of being of the ethical subject him/herself.

In the case of the project at Javeriana University, the notions of power and ethics explored in this paper help us clarify our view of what was happening. Our research team was immersed in a web of power relations characterised by dynamism, tension and struggle between discourses relating to what it means to achieve 'improvement', with or without the use of information technology. We had *our own* discourse of improvement, phrased in terms of the processes of inclusion, exclusion and marginalisation, which we used in association with our status as researchers and IS practitioners to alter the existing balance of power relations at Javeriana and outside it. This was an exercise of power. As discourses, embodied in their human advocates (including ourselves), met with one another, there were continuous attempts to subjugate, complement, and cancel each other out (see also Foucault, 1977). There was intentionality in our research team's strategies to involve different groups of people, and these strategies produced intended consequences and also unintended ones (like having our relationships with two of the planning groups terminated by their leaders, and being asked to continue with the project by the senior management of the University even though we were due to leave).

Our participation with others in different conversational domains can be seen in terms of a variety of subjects taking part in different sets of power relations. These subjects could attempt to 'freeze' the power relations (by invoking the support of the hierarchy at Javeriana for example), or they could resist established relations (e.g. by using the legitimating power of our methodology to push new concerns on to the agenda). However, whatever interactions unfolded, none of the subjects (including ourselves) could escape from the influence of power – both when dealing with constraints on their actions and exerting influence.

The research team can be seen as ethical subjects dealing continuously with tensions with others when developing their own ethical concerns. This makes sense of the ethical dilemma we faced (described under the heading 'critical engagements') concerning our interactions with a stakeholder group which refused to even listen to the views of others, let alone respond to them. We decided, on ethical grounds, to disengage from participation with these people. This was a result of a clash of ethical discourses, one of which was embedded in our own methodology. It is therefore not possible to describe our methodology – or any IS planning methodology for that matter – as 'neutral' in relation to issues of power and ethics²⁵. In advocating social inclusion, we were taking an explicit stance that would be perceived as dangerous or disagreeable by some of the stakeholders. Whatever methodology we might have chosen, it would not have been neutral: even the most 'instrumental' methodology, taking account of only the narrowest of organisational agendas, has ethical implications – for example, that participation is best restricted to 'experts', and the profit motive should be of primary concern. The difference between ours and this kind of instrumental methodology is that the language of ethics is usually absent in the latter, and participation is determined by a pre-set organisational agenda, so the chances of any rethinking of ethics and concerns is minimal. While unforeseen resistances can be

encountered when instrumental methodologies are employed (and it is their relative naïveté about power issues that makes some of these resistances unforeseen), our own methodology makes a virtue of engagement in power networks and participation in constructive collaborative/competitive struggles around definitions of improvement²⁶.

Having reflected once again on our project with Javeriana University, we should also say that the understanding of power and ethics presented in this paper suggests that there are ‘projects’, other than the usual type that employees, consultants or researchers are commissioned to carry out, that IS planners should be aware of. These are the ethical projects pursued by individuals and groups. Midgley and Ochoa-Arias (2001) call them “life projects” because they are about the trajectories and ethical learning of people across their lifetimes in interaction with others. Life projects may develop and change over time, but are seen as coherent because they are part of the story (told, revised and retold) of a particular person or group. However, in the context of the discussion in this paper, such projects need not always be seen as life-long. The implication is that any IS planning ‘project’ cuts across and interacts with many other projects, both organisational and non-organisational. Some of these projects may potentially be in tension with the one that has been commissioned – and the ethical project of the practitioner may come into conflict with a commissioned project too – so these tensions need to be worked with constructively as part of IS planning. They provide opportunities for learning and action, both within the commissioned project and in the various “life projects” the practitioner and others participate in.

21. Conclusion

In this chapter we have presented an IS planning methodology based on critical systems thinking and the theories of autopoiesis and boundary critique. We have also discussed a practical application of our methodology in a project at Javeriana University, Colombia. Based on this project, we argued that our methodology allows the emergence of issues not often addressed by traditional approaches to IS planning. It can help people identify a variety of concerns, including some from stakeholders who might not normally be consulted, and it can also support people in exploring the boundaries of their assumptions and the values that flow into their understandings of improvement. In addition, the methodology can assist people in translating their diverse concerns into meaningful paths for action.

However, our experience at Javeriana University also raised some ethical concerns. On several occasions we found that our desire for the IS planning to be open to different stakeholder views came into conflict with the desires of some of the participants to continue with ‘business as usual’. Therefore, an ethical question or dilemma was generated. Should we continue to promote respect for the views of a wide range of stakeholders, which effectively meant disrespecting those unwilling to listen, or should we simply accept the fact that some people might not want to open themselves to the perspectives of others? Having to deal with this question led us to conduct further research on power and ethics once the project had ended.

This research focused on the work of Michel Foucault, who talks about interactions between ethical discourses and networks of power relations, and several implications for IS

planning can be derived from it. There is a need to think critically about the kinds of individual and group identities being promoted in the emerging information society. Also, power can be an important concept for the analysis of interactions between people in IS planning. The ethical concerns that are swept into IS planning can be understood as arising from interactions between individuals and collectives as ‘subjects’ who are immersed in power relations. While power relations would seem to be inevitable, subjects can still reflect on their relationships with others and define positive alternatives for action.

Of course we, as IS planning practitioners, are just as much subjects participating in networks of power as the stakeholders in our projects, so our methodologies can never be neutral. We therefore have a responsibility to reflect on the ethical assumptions embedded in our methodologies and consider their possible impacts on both IS planning projects and the various other types of ‘project’ that people may be pursuing. By understanding our roles in networks of power we may ultimately become more critical about our own ethical identities and our own ways of being, both as IS practitioners and as people sharing our lives with others.

22. Acknowledgement

We would like to thank all the people at Javeriana University who were involved in the project – particularly Diego Torres (our co-facilitator) and the other members of staff in the Computer Science and Systems Engineering Department who provided us with so much support.

23. Endnotes

¹For the purposes of this chapter, this term also embraces the information and communication technologies (ICTs) necessary to operate information systems.

²This phenomenon seems to have started with (i) the emergence in the United States and Asian countries of important centres of hardware manufacturing for personal computing, and (ii) more computing power becoming available as standard in PCs (Senker, 1992).

³Viewing organisations as collections of people with concerns does not imply a denial of the existence of purposes at the organisational level – it simply enables us to acknowledge that these purposes are emergent properties of complex interactions structured through networks of power, knowledge and identity. Dominant purposes (and a variety of other purposes) can still be ascribed to an organisation, but these inevitably stem from processes of legitimation within and beyond the organisation that lead to action being taken in the organisation’s name (Midgley, 2000).

⁴One example is the Maloka Project in Bogota, an interactive Centre set up in 1997 whose mission is to contribute to the appropriation of science and technology by the Colombian people (Maloka, 2000). The Maloka Project aims to foster the creation of a knowledge-based culture in which technology is part of people’s daily lives, taking account of sustainable development considerations (Maloka, 2000).

⁵In order to massively expand the provision of information systems to schools it was said in 1999 that all the schools in important cities should have at least 2 computers with internet access (El Tiempo, 1999; PNE, 1999). However, this has not been achieved due to the provision of insufficient financial resources and the setting of ‘unrealistic’ goals (Agenda Conectividad, 2000a,b).

⁶There is an extensive literature on CST so we can only give a flavour of the ideas here. For more in-depth presentations see, for instance, Flood and Romm (1996a), Midgley (2000) and Jackson (2000). It is also important for us to acknowledge that the CST perspective we present here is our own interpretation, and this may be different from the interpretations made by others. There is a healthy diversity of views within the CST research community (see Midgley, 2000, for a discussion of this).

⁷Of course, we should say why we have used the term 'improvement' rather than, say, the creation of beauty, pleasure, knowledge, understanding, emancipation or spiritual enlightenment. The answer is that, if we value any of these things, the creation of these *represents* an improvement. The term 'improvement' is therefore general enough to have meaning in relation to almost any value system: it simply indicates the purposeful action of an agent to create a change for the better (Midgley, 1996, 2000).

⁸E.g. Churchman (1970, 1979), Ulrich (1983, 1994), Midgley (1992a, 2000), Midgley et al. (1998), Vega-Romero (1999), Córdoba et al. (2000) and Yolles (2001).

⁹Of course this then raises the issue of dealing with theoretical contradictions, which is beyond the scope of the present paper. See Gregory (1996) and Midgley (2000) for two different views on how CST practitioners might understand and deal with theoretical contradictions.

¹⁰E.g. Jackson and Keys (1984), Jackson (1987a,b, 1990, 1991, 1999, 2000), Keys (1988, 1991), Oliga (1988), Flood (1990, 1995a,b), Midgley (1990, 1992b, 1997a,b, 2000), Flood and Jackson (1991a,b), Gregory (1992, 1996, 2000), Flood and Romm (1996a,b), Mingers and Gill (1997), Taket and White (2000) and Clarke and Lehaney (2000).

¹¹An example is the marginalised position of people who are unemployed. There is a conflict between the liberal discourse of citizenship, where all people have equal value because of their status as rational beings, and the capitalist discourse of good employment practice that limits the responsibility of organisations to their employees alone. This conflict is not stabilised by either the inclusion *or* exclusion of the unemployed, but by their marginalisation. If unemployed people were to be fully included along with employees in the primary boundary of industrial organisation, then 'good employment practice' (indeed, the whole capitalist system of organisation) would become untenable. However, if they were fully excluded, the liberal ideal of equal citizenship would become untenable instead. Both the liberal and capitalist discourses have long histories in the West, and have come to be institutionalised throughout the economic and legal systems of our societies. While on the whole the two discourses are mutually supportive (Booth Fowler, 1991; Midgley and Ochoa-Arias, 1999), there are still significant tensions, and the phenomenon of unemployment points to one of them. The key to understanding the status of the unemployed is to realise that it is only possible to maintain the dual commitment to liberalism and capitalism if people who are unemployed are neither fully included nor excluded. People who are unemployed therefore become marginalised, but the conflict is finally stabilised when a sacred or profane status is imposed on them. When they are regarded as profane, it justifies thinking in terms of narrow organisational boundaries. When they are regarded as sacred, this justifies programmes to support social inclusion. There is rarely a consensus on whether a marginal group or issue should be viewed as sacred or profane, but there are dominant patterns of social action which come to be solidified in rituals. In the case of the unemployed, a typical example in developed nations

that provide welfare payments is ‘signing on’ (signing a register of availability to work), which many people view as an exercise in ritual humiliation.

¹²When something is being privileged it can be the result of either inclusion within a primary boundary (with other things marginalised and made profane), or a sacred status being ascribed to a marginalised element. Which of these is the case in any local situation requires some context-specific interpretation in the light of answers to some of the other questions.

¹³Midgley (2000) argues that we should not regard any theory, including the theory of autopoiesis, as ‘foundational’ – an absolute truth from which everything else flows. There is a tendency for some writers to treat biological theories in this way (Darier, 1999). We can be pluralistic about theories, drawing upon them when they are appropriate for the circumstances. This is the spirit in which we use the theory of autopoiesis.

¹⁴This is, of course, a controversial assertion that some proponents of the theory of autopoiesis distance themselves from (e.g., Mingers, 1995). For Mingers, not being able to see a phenomenon (not being triggered by it) does not mean it is literally absent, but that as far as the autopoietic system is concerned it *might as well* not exist.

¹⁵Earlier (in the section on boundary critique), we discussed the work of Ulrich (1983) who developed a list of twelve questions that can be used heuristically to explore what any system of interest currently *is* and what it *ought* to be. Because this list includes questions about the likely effects of plans, who should participate in deciding on purposes, etc., we have found it useful in a variety of projects for operationalising boundary critique (e.g., Cohen and Midgley, 1994; Midgley et al., 1998; Boyd et al., 1999; Midgley, 2000). We would certainly not recommend restricting boundary critique to a mechanical use of the twelve questions, as if it were just a matter of ticking boxes as they are answered. Nevertheless, they are a useful starting point for considering the kinds of issues that need to be addressed when seeking to explore the boundaries of IS plans. The full list of twelve questions was first published in Ulrich (1983) and has since been reprinted in Ulrich (1986) and Midgley (1997c, 2000).

¹⁶We did not see adapting our language for the practical purposes of communicating with non-IS practitioners as generating a problem for our methodology. On the contrary, for us to respect the rational domains of others, and develop new rational domains in partnership with them (as suggested by the theory of autopoiesis), this kind of adaptation is necessary. It also fits with Zhu’s (2002) observation that new languages of participation, developed in academic and practitioner communities, can actually *obstruct* participation if imposed unilaterally on users of information systems.

¹⁷This technique was adapted from a similar one used by Weil (1998).

¹⁸A potential criticism of this method is that, by using pictures from the mass media, we were colluding in the privileging of concerns that grab media attention over other, less well-publicised concerns. This is arguably the case, but three points should be made here. First, we used a wide range of images, covering ‘personal’ as well as ‘political’ issues, and these were selected by three people to prevent any single view from dominating. Second, whatever we decided to use as ‘trigger’ material would have promoted particular concerns. The important thing is that using this material *widened* the set of concerns beyond those that might have occurred spontaneously to interviewees – and of course spontaneous concerns were not suppressed. Third, with regard to the specific charge of mass media influence, research evidence suggests that the media *already* shapes the issues that are

considered important by the public, but not what stance individuals will take on these issues (Cohen, 1963; Liebl, 2002).

¹⁹Two ways were developed, partly because different groups seemed to be comfortable with different approaches, and partly because the facilitators had different ideas about what to do next. To make our approach as responsive as possible we set out two paths for intervention that the facilitators and participants could choose between depending on the contingencies of the situation.

²⁰There is a case for saying that, out of respect for other participants in the project, we should facilitate the publication of their reflections too (Adams and McCullough, 2003). While we accept the logic of this, there is insufficient space in the present paper to include more than our own reflections – and in any case it is these that have led to our further thinking about power and ethics (Córdoba, 2002, and this paper). Hopefully, we will be able to surface wider reflections in future research.

²¹We also drew on some of the secondary literature, such as Dreyfus and Rabinow (1982).

²²We should note that several previous CST writers (and others in dialogue with them) have drawn upon Foucault's work, but mostly in different ways from us. See, for example, Flood (1990), Brocklesby and Cummings (1996), Valero-Silva (1996, 1998), Mingers (1997), Munro (1999, 2001), Vega-Romero (1999), Vélez (1999) and Taket and White (2000).

²³The idea of a universal ethics was a 'holy grail' for philosophers for several centuries – in particular, see the tradition of 'practical philosophy' (moral philosophy) stemming from Kant (1788).

²⁴Also see Vélez (1999) for some further thoughts on the implications of Foucault's ideas for the theory of autopoiesis.

²⁵This is a point of view we have heard several times in verbal discussions between critical systems thinkers, but in writings about CST there is often more of a focus on the non-neutrality of the *intervener* rather than the methodological discourse s/he is advocating (see, for example, Midgley, 2000).

²⁶It seems to us that relatively few methodologies talk explicitly about positive uses of power, although two notable exceptions are Vega-Romero (1999) and Taket and White (2000).

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