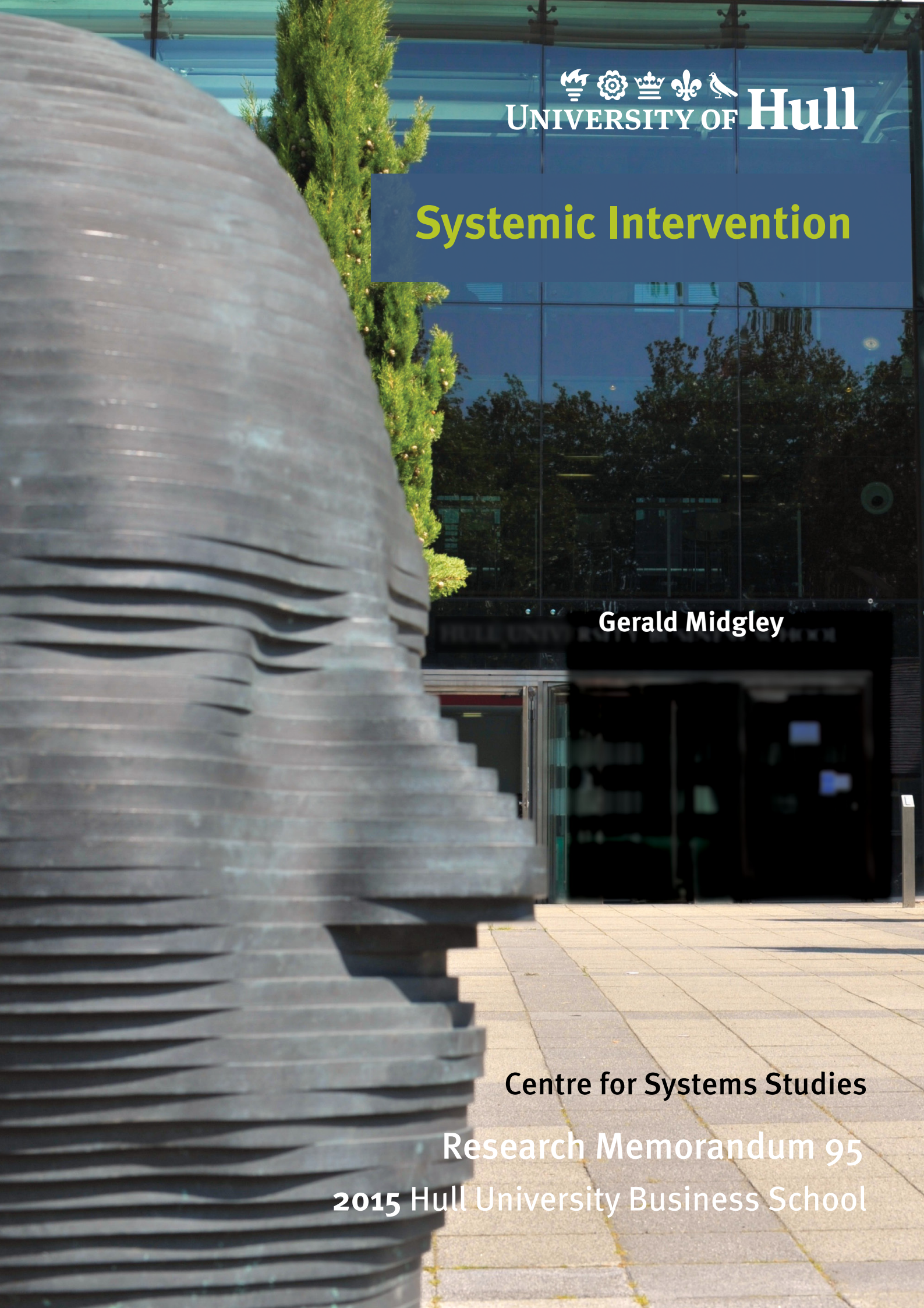

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Systemic Intervention

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SYSTEMIC INTERVENTION

ABSTRACT

This paper describes the practice of systemic intervention, emphasizing (1) the need to explore stakeholder values and boundaries for analysis; (2) responses to the challenges of marginalization processes; and (3) a wide, pluralistic range of methods from the systems literature and beyond to create a flexible and responsive systemic action research practice. After presenting an outline of systemic intervention, the author discusses several other well-tested systems approaches with a view to identifying their potential for further supporting systemic intervention practice, and action research more generally. Two practical examples of systemic intervention are provided to illustrate the arguments.

Keywords: Boundary critique; critical systems thinking; marginalization; methodological pluralism; systemic action research; systemic intervention; systems thinking.

1. INTRODUCTION

Because of the complexity of many of the environmental, social and organizational issues that action researchers engage with, where numerous interacting variables need to be accounted for and multiple agencies and groups bring different values and concerns to bear, it is not uncommon for people to call for a systems approach. The desire is for a "bigger picture" understanding, both of complex, non-linear interactions and the dynamics of multiple stakeholder relationships and perspectives. To address this call, I offer a set of methodological concepts that I have found useful in my own systemic action research practice.

Of course, many different systems methodologies have been developed over the years. There are far too many to list, let alone review (see Midgley, 2003, for a four volume set of readings). However, the methodology I want to introduce here, which I have called "systemic intervention" (Midgley, 2000), has the advantage of taking a pluralistic approach to the design of methods. It provides a rationale for creatively mixing methods from a variety of sources, yielding a more flexible and responsive approach than might be possible with a more limited set of tools.

I will outline this methodology before reviewing a selection of other systems approaches that have been designed for different purposes. We can borrow some useful methods from these approaches, which can then be woven into systemic intervention practice (and more traditional scientific methods plus methods from other sources can be drawn upon in the same way). Two brief practical examples of systemic intervention illustrate my argument.

2. SYSTEMIC INTERVENTION

I define "intervention" as purposeful action by an agent to create change. I accept that this definition raises questions about purpose and agency, but these are addressed elsewhere (Midgley, 2000, 2008). My emphasis on intervention contrasts with the usual focus of science on observation. However, unlike some authors who champion intervention, I do not regard it as incompatible with scientific observation: methods for observation can be harnessed into the service of intervention.

Building on the above definition, I characterize *systemic* intervention as purposeful action by an agent to create change in *relation to reflection upon boundaries.* One common assumption made by many systems thinkers is that everything in the universe is either directly or indirectly connected with everything else. However, human beings cannot have a "God's-eye view" of this interconnectedness. What we know about any situation has limits, and it is these limits that we call boundaries. Comprehensive analysis is therefore impossible. Nevertheless, by acknowledging that this is the case, and by explicitly exploring different possible boundaries for analysis, we can paradoxically achieve greater comprehensiveness than if we take any single boundary for granted. I call this process of exploration "boundary critique." For me, this is the crux of what it

means to be systemic.

2.1 Boundary Critique

The term “boundary critique” was first coined by Ulrich (1996) to refer to his own methodological practice, but here I am using it more broadly as a label for the concern with boundaries that is present in the writings of several authors, starting with Churchman (1970).

Churchman's basic insight is that boundary judgments and value judgments are intimately linked. Values direct the drawing of the boundaries that determine who and what is going to be included in an intervention, so the most ethical systemic action research practice is one that involves pushing out the boundaries as far as possible so that a wide set of stakeholder values and concerns can be accounted for (but without compromising comprehension through over inclusion).

However, Ulrich (1994) argues that, in practice, it is often difficult to push out the boundaries in this way: time, resource and other constraints can intrude. Ulrich therefore stresses that boundary critique should involve the justification of choices among boundaries, and should be a rational process. The widest possible boundary is not necessarily the most rational, given practical considerations. For Ulrich, rationality is inherently dialogical: all rational arguments are expressed in language, and language is primarily a tool for communication, so a boundary judgment is only truly rational if it has been agreed in dialogue with all those involved in and affected by an intervention. Stakeholder participation (of those involved in or affected by decision making) is therefore crucial to boundary critique.

2.1.1 Marginalization

In my own research on stakeholder participation and boundary critique, I have been particularly interested in what happens when two or more groups of people make different value/boundary judgments and then find themselves in entrenched conflict. As an aid to understanding and intervening in such situations, I offer several generic models of marginalization and stigmatization processes that explain the persistence of conflict between stakeholders (e.g., Midgley, 2000; Midgley and Pinzón, 2011). Stakeholders and issues can both be marginalized, and this marginalization can even become institutionalized.

The most commonly used model of marginalization can be found in Figure 1. I argue that, in conflict situations, if one group makes a narrow boundary judgment 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 judgment, but are included in the wider thinking of the second group. We can call the two boundaries the “primary” and “secondary” boundaries (the primary boundary being the narrower one).

In the Figure, the primary and secondary boundaries both have a set of ethics (or values in purposeful action) associated with them. Between the two boundaries is the marginal area. Within this are people or issues that are of concern to those operating with the secondary boundary but are excluded from the concerns of those using the primary boundary. The two ethics come into conflict, and whatever is in the margins becomes the focus of this conflict.

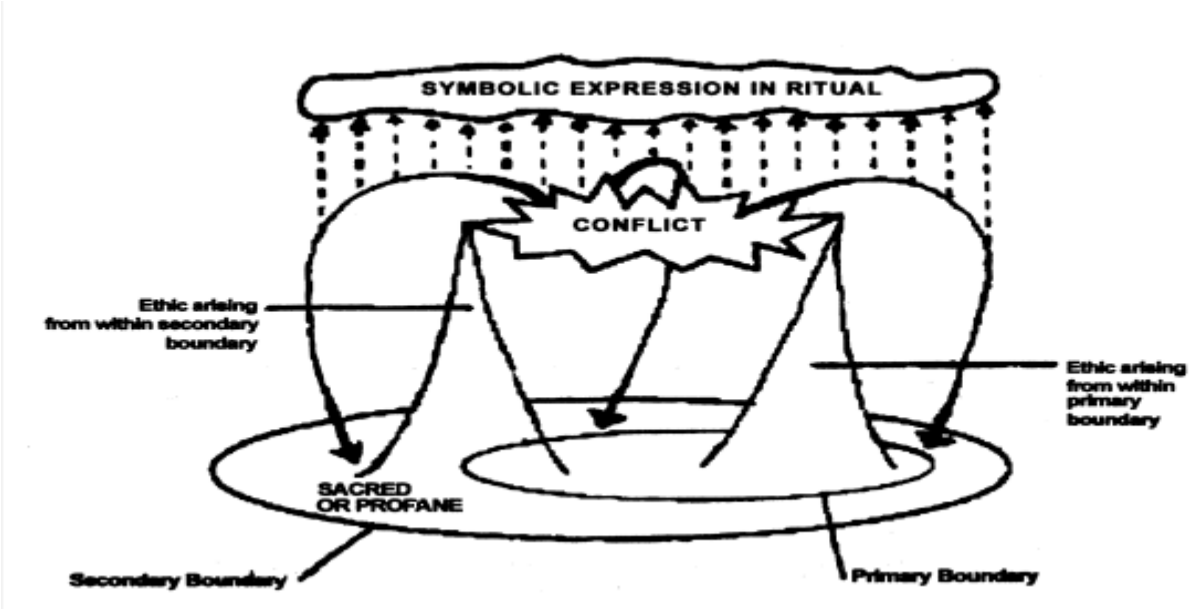

Figure 1: process of marginalization (from Midgley and Pinzón, 2011)

The conflict is then stabilized by the imposition of either a “sacred” or “profane” status on the marginal people or issues. These terms are not meant in a religious sense, but indicate the valued or devalued status of marginalized elements. I use them in preference to more “neutral” language to reflect the strength of feeling that accompanies the derogation or exaltation of other people on the basis of their status, roles, interests, identities or beliefs.

In a conflict situation, there is rarely a consensus about whether marginalised people or issues are sacred or profane, but by institutionalising value judgements in social rituals, the conflict comes to be stabilized with one set of values dominating. So, if the profane status of marginal elements is institutionalised, then the primary boundary is reinforced because people can quite justifiably ignore or derogate whatever is in the margins. But if the sacredness of marginalised people or issues is institutionalised, then this challenges the narrow boundary judgement by encouraging the exaltation of whatever is in the margins, and this reinforces the wider secondary boundary.

These kinds of processes operate at every level in society, from small groups to international relations. Many different stakeholders and issues can be marginalized for all sorts of reasons, and when they are made profane the effects can be quite devastating. Some forms of marginalization are relatively easy to overcome because they have their roots in quite localized histories of conflict, but some stem from conflicts that are structured into whole societies, and these are the ones that are the most difficult to change. It is vital to take processes of

marginalization into account as part of boundary critique and systemic intervention.

2.1.2 Boundary Critique in Action

I will offer a brief illustration of how boundary critique can be used in systemic action research. In the late 1990s, I worked with colleagues on a project to facilitate the design of new services for young people (aged under sixteen) living on the streets. We recognized, and all the relevant stakeholders concurred, that it was crucial for young people to be core participants in the research. This was a boundary judgment about participation that would have important consequences for the issues to be considered in the design process. The young people had quite specific concerns that they wanted addressing, and some of these would almost certainly have been omitted if participation had been limited to professionals alone.

However, when involving young people, we had to be aware that there was a double danger of marginalization: in general, young people under sixteen are viewed as less “rational” than adults. Also, these particular young people could easily have been stereotyped as troubled and untrustworthy teenagers because, in order to survive on the streets, many of them had to resort to begging, petty crime, or prostitution. Therefore, in setting up design workshops, we gave the young people space, out of the hearing of professionals, to develop their ideas (an empowerment technique), and we used exactly the same planning methods as we used with the adult participants to generate proposals for change. This allowed a direct comparison to be made between the ideas from the young people and adults, and prevented the kind of marginalization that might have occurred if we had used a more “playful” approach with the young people and a more traditional “rational planning” method with the professionals. It would have been easy, if we had done the latter, for the professionals to have viewed only their own output as the “proper” plan. This was just one of many issues that we explored and addressed through our boundary critique (see Midgley, 2000, and Boyd, Brown and Midgley, 2004, for further details).

2.2 Methodological Pluralism

In addition to boundary critique, I also advocate two forms of methodological pluralism. The first is learning from other methodologies to inform one's own. This way, each agent has a continually developing systemic action research methodology. We no longer have to accept a situation where people build a methodology like a castle and then defend it against others who want to breach the castle walls. Rather, if people begin to see methodology as dynamic and evolving, they can learn from others on an ongoing basis (Midgley, 2000).

The second form of methodological pluralism involves drawing upon and mixing methods from other methodologies (e.g., Flood and Jackson, 1991; Jackson,

1991; Flood and Romm, 1996; Mingers and Gill, 1997; Midgley, 2000). The wider the range of methods available, the more flexible and responsive our systems practice can be. No methodology or method (whether it comes from the systems tradition or elsewhere) can do absolutely everything people might want. Therefore, being able to draw upon multiple methods from different paradigmatic sources can enhance the systems thinking resource we have available for intervention.

2.2.1 Methodological Pluralism in Action

As a brief illustration, the project to facilitate the design of new services for young people living on the streets (discussed earlier) used a number of different interlinked methods and techniques:

- Individual interviews with young people, foster caretakers, and retailers;
- The use of photographs and cards with evocative pictures to stimulate ideas;
- A focus group with staff working in a children's home;
- Rich pictures (visual depictions of the problem situation using drawings and arrows showing the links between key issues—see the Soft Systems Methodology section of this paper for the origins of this technique);
- A synergy of two systemic planning methods (see the Interactive Planning and Critical Systems Heuristics sections of this paper for details) implemented in separate stakeholder and multi-agency workshops;
- Values mapping (a method we developed to visualize people's values and the logical connections between them);
- Small group, multi-agency action planning;
- The production of reports, magazines, and posters for multi-audience dissemination; and
- Formative evaluation (feedback questionnaires filled in by participants).

In my view, no single, previously existing methodology was able to provide all the methods needed for this project. Methodological pluralism was absolutely necessary (Boyd, Brown and Midgley, 2004).

2.3 Added Value

Arguably, the main added value of systemic intervention compared with earlier systems approaches is its synergy of boundary critique and methodological pluralism. If boundary critique is practiced on its own, it is possible to generate some interesting sociological analyses, but there is a danger that these will not effect change unless other more action-oriented methods are used too. Also, embracing methodological pluralism without up-front boundary critique can give rise to superficial diagnoses of problematic situations. If a complex issue is defined from only one limited perspective without reflecting on values and boundaries, and issues of marginalization are neglected, then the outcome could

be the use of a systems approach that misses or even exacerbates significant social problems. The synergy of boundary critique and methodological pluralism ensures that each aspect of systemic intervention corrects the potential weaknesses of the other.

3. OTHER RESOURCES FOR SYSTEMIC ACTION RESEARCH

Arguably, one of the great strengths of previous research on systems thinking is the variety of methods that have been developed to serve different purposes. If we can begin to harness this variety into a form of systems practice that still keeps the idea of reflecting on value and boundary judgments at its core, I believe we will have a great deal to offer people in the public, private, voluntary and community sectors who are seeking to address highly complex environmental, social and organizational issues. Below, I provide some examples of other systems approaches which have methods that can be incorporated into systemic intervention. These have been widely applied in practice, and offer tools that I have found useful in my own systemic action research.

3.1 System Dynamics

System dynamics (e.g., Forrester, 1961; Sterman, 1994) offers methods for modeling complex feedback processes and considering possible impacts of changes to the system of concern. By experimenting with a model, decision makers are able to anticipate possible emerging scenarios that could follow from a new policy initiative or intervention.

System dynamics gives practitioners some useful tools to model feedback processes in a manner that can not only help to make transparent why certain system-level effects might occur, but can also help them anticipate counterintuitive effects of interventions. As Forrester (1971) has demonstrated, some policies, introduced with the best of intentions, have the opposite effects of those that are desired. By modeling the feedback loops that stabilize and/or destabilize the system of concern, the approach can highlight surprising side effects of policy options that might not otherwise have been visible in advance of implementation.

3.2 The Viable System Model

The second methodology of interest is the viable system mode1 (e.g., Beer, 1985), which proposes that, for an organization to become and remain viable in a complex and rapidly changing environment, it must have each of the following 5 functions:

1. Operations: the provision of products or services that address particular

needs in the organization's environment;

2. Coordination: ensuring that the operational units work together and communicate effectively;
3. Support and control: especially with regard to distributing resources, providing training, gathering and distributing information about quality, etc.;
4. Intelligence: the forecasting of future needs, opportunities, and threats. This involves a comparison between the external requirements placed upon the organization and its internal capacity; and
5. Policymaking: setting long-term goals and objectives, and maintaining the identity of the organization.

According to the viable system model, the key to effective organization is not only to make sure that all five functions exist, but also to ensure that communications among the functions are appropriate and effective. Together, these functions manage the information and decision flows necessary for effective organization. The model can be used to diagnose current organizational failings or to design entirely new organizations.

For people to be able to respond adequately to complex issues, they need to have an effective organizational infrastructure behind them. The viable system model can make a useful contribution to organizational development.

3.3 Interactive Planning

Although system dynamics and the viable system model involve modeling ecological, social, and/or organizational systems, other methodologists have moved away from modeling to focus on the facilitation of dialogue among stakeholders who bring different insights to bear on complex issues. An example is Ackoff (1981), whose methodology of interactive planning seeks to liberate the knowledge and creative abilities of everybody in (and often including stakeholders beyond) an organization to produce a plan of the ideal future that the organization can work toward. The plan may take some time to implement, perhaps many years, but it offers a feasible set of targets for the longer term. A key idea is that the plan should be wide enough and creative enough to “dissolve” any disagreements among participants. The transformation it proposes should result in the commitment of all concerned.

The approach can be represented in the form of 3 stages:

1. Establish planning boards (every role in the organization should be represented in planning, with participation as widespread as possible);

2. Generate desired properties of the organization's products and/or activities (this is “ends planning,” conducted under conditions of minimum constraint with only technological feasibility, viability, and adaptability limiting propos-

als); and

3. Produce the plan itself (“means planning,” where all sections of the organization agree on how to move forward).

I have used aspects of Ackoff's work in my own projects; for example, to look at how the mental health and criminal justice systems would have to be changed to prevent people with mental health problems from inappropriately ending up in prison (Midgley, 2000). If organizations are willing to commit the resources to participative planning, I believe this is a useful approach that can help people move beyond everyday fire fighting toward the formulation of inspiring (but still feasible) long-term visions of how policies, services and products can be improved. My only caveat is that most of Ackoff’s projects were undertaken within the boundaries of a single organization, while I have found it necessary, when undertaking complex policy and community-based action research projects, to extend participation to a wide range of agency representatives and community groups. I have always used interactive planning in this wider participative manner, and it puts some responsibility on the systemic action researcher to ensure that marginalized groups are properly included.

3.4 Soft Systems Methodology

Another approach that can be used to facilitate dialogue among stakeholders is soft systems methodology (e.g., Checkland and Poulter, 2006). This encourages participants to generate issues to address through ongoing explorations of their perceptions, and it supports people in modeling desirable future human activities. These models of future human activities can then be used as a basis for guiding actual human activities in the world. However, to ensure that the models will indeed be useful, it is necessary for participants to relate them back to their perceptions of their current situation. In this way, possibilities for change can be tested for feasibility.

The methods of soft systems methodology, which are often utilized in a workshop format, can be summarized as follows:

1. Consider the problem situation in an unstructured form;

2. Produce a ‘rich picture’: a visual representation of the current situation, with pictures and arrows to represent links between issues;

3. Identify different possible ‘relevant systems’ that might be designed to improve the situation, and harmonize understandings of these by exploring, for each relevant system, who should be the beneficiaries of a proposed change, who should carry it out, what the transformation should be, what worldview is being assumed, who could prevent the change from happening, and what environmental constraints need to be accepted;

4. Produce a ‘conceptual model’ for each relevant system: a map of the interconnected human activities that need to be undertaken if the system is to become operational;

5. Refer back to the rich picture to check the feasibility of the ideas;

6. Produce an action plan; and

7. Proceed to implementation.

Of course, participants need to move backward and forward among these activities, harmonizing the outputs from each one with the others. The activities should not be implemented mechanistically in a linear sequence.

Soft systems methodology provides a useful language to ensure that ongoing planning retains a systemic focus, and can support people in making accommodations to find acceptable ways forward when they have different perspectives on an issue. I have found it particularly useful for multi-agency planning; for example, when facilitating a debate among nineteen agency representatives who wanted to cooperate on the design of a counseling service that could be activated in the event of a major disaster, but their different perspectives were obstructing progress. Over six days, the agencies came to an agreement that resulted in the design, funding, and implementation of the counseling service (Midgley, 2000).

3.5 Critical Systems Heuristics

The final methodology I want to review is Ulrich's (1994) critical systems heuristics. As we saw earlier in the section on Boundary Critique, an important aspect of Ulrich's thinking is that boundary and value judgments (made by the action researcher or participants) 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 values that can be pursued. Being concerned with values, boundary critique is an ethical process. Because of the focus on dialogue among stakeholders in dealing with ethical issues, a priority for Ulrich is to evolve practical guidelines that planners and ordinary citizens can both use equally proficiently to conduct boundary critique. For this purpose, he offers a list of twelve questions that can be employed by those involved in and affected by planning to interrogate what the system currently is, and what it ought to be. These twelve questions cover four key areas of concern: motivation, control, expertise, and legitimacy.

In my view, there is significant potential for using Ulrich's twelve questions in public sector action research in particular, not least because they cut to the heart of many issues that are of fundamental concern to people in communities who find themselves on the receiving end of policies and initiatives that they either do not agree with or find irrelevant. In my own practice, I have used these questions

with people with mental health problems recently released from prison, older people in sheltered housing, young people who have run away from children's homes and others (e.g., Midgley, 2000). Ulrich claims that his questions can be answered equally proficiently by 'ordinary' people with no experience of planning as they can by professionals, and I believe that he is right—with the caveat that the questions should be made specific to the plans being discussed, and also need to be expressed in plain English. If the questions about what ought to be done are asked early on in planning a new public policy initiative or service, I have found that 'ordinary' people are usually able to think just as systemically as professionals (indeed, sometimes more so!).

4. A FURTHER PRACTICAL EXAMPLE OF SYSTEMIC INTERVENTION

To further ground this presentation of methodology, I briefly outline another systemic intervention that I undertook with colleagues. Only a sketch is provided here, and therefore many of the social dynamics that were important to the intervention have been omitted. More details can be found in Midgley, Munlo and Brown (1998) and Midgley (2000).

The initial remit of the project was to work with local governments in the UK to find out how information from assessments of older people applying for health, housing, and welfare services could be aggregated to inform the development of housing policy.

However, some initial interviews with stakeholders quickly revealed that there were two major problems with the boundaries of our study. First, it became apparent that if the housing "needs" expressed by older people fell outside local government spending priorities, they were not recorded. This meant that aggregating information from assessments would paint an artificially rosy picture, making it seem as if all needs were being met. Second, many urgent problems with service provision, assessment, and multi-agency planning were being raised by stakeholders (including older people themselves). We felt that ignoring these would be unethical, especially as we had already come to the conclusion that the initial remit of the intervention was flawed. As a consequence, we worked with the funder to expand the remit of our systemic action research to look at the wider system of assessment, information provision, and multi-agency planning for older people's housing, and what could be done to improve it.

Semi-structured interviews with 131 stakeholders from a wide variety of organizations (including older people themselves) yielded data that we used to create a 'problem map'. This is similar to a system dynamics model, except that problem mapping is purely qualitative. The purpose is to demonstrate to stakeholders that their problems are strongly interdependent, and therefore they require changes to the wider system to be resolved.

Having demonstrated the systemic nature of the issues, the next stage was to ask what kind of system change was needed. To answer this, we held a series of interactive planning workshops, asking what ideal (but still technologically

feasible, viable, and adaptable) housing services would look like. We integrated the critical systems heuristics questions so we could explore issues of motivation (or purpose), control (including governance), expertise, and legitimacy. To prevent the marginalization of older people, we worked with them separately from professionals, allowing them more time and space to develop their views. Our workshops demonstrated a widespread agreement among stakeholders on housing policy, with only a few relatively minor disagreements needing resolution.

We then brought together senior managers from health, housing, and welfare organizations to look at what kind of organizational system could deliver the housing services that the stakeholders had asked for. We introduced the viable system model as a template for the organizational design, and systematically evaluated this design using criteria derived from the earlier work with older people and frontline professionals, thereby ensuring that these perspectives were not marginalized now that participation had been narrowed to managers. In this way, we could be confident that the managers' proposals would either meet the stakeholders' requirements directly or would provide the organizational means to address them in future years.

This example of systemic intervention demonstrates the benefits of boundary critique. The initial problematic remit of the project was usefully expanded, and the potential for marginalizing older people was identified and addressed. It also demonstrates the value of methodological pluralism. In my view, no single set of methods yet developed could have addressed all the issues in this intervention. It took a combination of semi-structured interviewing, problem mapping, interactive planning, critical systems heuristics, and viable system modeling to support stakeholders in both defining the issue and responding to it systemically.

5. CONCLUSION

I have presented a methodology for systemic intervention, incorporating boundary critique and methodological pluralism, and have discussed several systems approaches from which we can borrow useful methods. I have also provided two practical examples of systemic intervention. I suggest that this kind of approach is not only able to address values, boundaries, and marginalization in defining complex issues, but it also has the potential to deliver all the utility of other systems approaches (and the wider set of action research and scientific practices) because it explicitly advocates learning about and drawing methods from those approaches to deliver maximum flexibility and responsiveness in systemic interventions.

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Biography

Gerald Midgley is Professor of Systems Thinking and Associate Dean for Research and Enterprise in the Business School at the University of Hull, UK. He also holds Adjunct Professorships at the University of Queensland, Australia; the University of Canterbury, New Zealand; Mälardalen University, Sweden; and Victoria University of Wellington, New Zealand. He was Director of the Centre for Systems Studies at Hull from 1997 to 2003 and from 2010 to 2014. From 2003 to 2010, he was a Senior Science Leader in the Social Systems Group at the Institute of Environmental Science and Research (ESR), New Zealand. Gerald has had over 300 papers on systems thinking, action research and stakeholder engagement published in international journals, edited books and practitioner magazines, and has been involved in a wide variety of public sector, community development, technology foresight and resource management projects. He was the 2013/14 President of the International Society for the Systems Sciences, and has written or edited 11 books including, *Systemic Intervention: Philosophy, Methodology, and Practice* (Kluwer, 2000); *Operational Research and Environmental Management: A New Agenda* (Operational Research Society, 2001); *Systems Thinking, Volumes I-IV* (Sage, 2003); *Community Operational Research: OR and Systems Thinking for Community Development* (Kluwer, 2004); and *Forensic DNA Evidence on Trial: Science and Uncertainty in the Courtroom* (Emergent, 2011).

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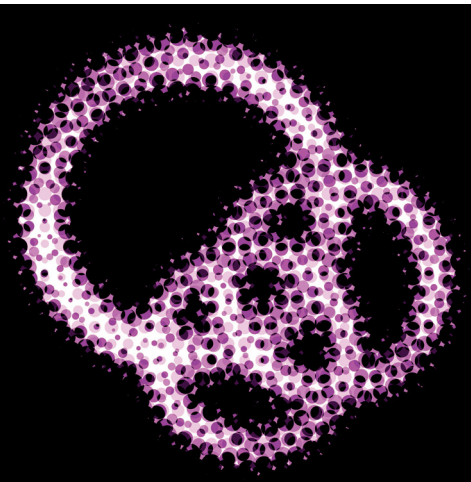

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