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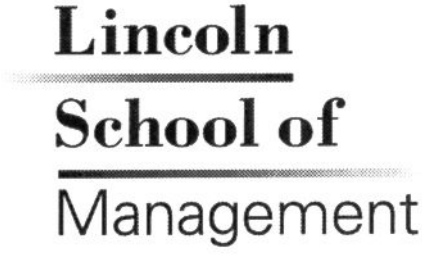
Systems Thinking as if People Mattered

Critical Systems Thinking for Citizens and Managers

Werner Ulrich

Working Paper No. 23 1998



Abstract

This Working Paper offers a revised version of a talk that was given to the staff and the Ph.D. students of the Lincoln School of Management on January 16, 1997. The author's research programme, 'Critical Systems Thinking for Citizens', was explained and discussed with special regard to its goal of contributing to the revival of civil society. The author argued that critical systems thinking has a potential of giving citizens a new sense of competence, and that this new competence will also alter our notion of competent management.

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INTRODUCTION

The idea behind my current research programme, *Critical Systems Thinking for Citizens* (see Ulrich, 1995, 1996b, 1996c), is that critical systems thinking may be of interest not only to professionals but also to citizens. My topic in this paper is a bit different, though: in addition to explaining why I believe this is so, I am interested in the project's implications for our notion of competence in management. For this reason, I have allowed myself to adjust the designation of the project a bit to the occasion, by calling it 'Critical Systems Thinking for Citizens *and Managers*'. I hope the reader will agree at the end that this adjustment is not entirely inappropriate.

The goal of *Critical Systems Thinking for Citizens and Managers,* then, is to develop and pragmatise systems ideas in such a way that both the so-called ordinary citizen and the average manager can use them as an aid to critical reflection. The idea is not, of course, to turn citizens into systems scholars, not any more than managers; the idea is, rather, to support them in gaining a new reflective competence *as* citizens and managers, respectively. The essential concern is civil society. How can we enable both citizens and managers to participate in, and contribute to, the development of a living civil society? How will this affect our notion of competent management? I would like to offer three basic propositions concerning this issue:

My *first* proposition concerns the role of competent citizenship for a functioning *civil society*. If by a civil society we understand a society in which ordinary people can effectively participate in decisions on matters of collective or public (as distinguished from purely private) concern, a basic question is indeed how we can render ordinary people capable of thus participating. I therefore propose that contrary to what is usually assumed, citizenship is not mainly a matter of civil rights but rather one of civil competencies. To me, democracy is a kind of government that enables people to become competent members of a civil society.

My *second* proposition concerns the role of *systems thinking* in this. I suggest that systems thinking, particularly through its new stream of 'critical systems thinking' (CST), has something important to contribute to the revival of the idea of a civil society. I believe that CST indeed holds a key for giving ordinary people (managers as well as other citizens) a new competence in citizenship.

Democracy is a kind of government that enables people to become competent members of a civil society.

My *third* and last proposition concerns the role of *management* in a civil society. It seems to me that the idea of a civil society, and the consequent concern for competent citizenship, have a lot to do with a proper understanding of the societal function of management. I believe that managers in future need to include the two previous propositions in their concept of good management. That means, competent managers will need to be competent citizens in the first place!

My topic, then, has something to do with my personal vision of the mission of a newly-founded management school such as Lincoln. I suggest we should see its educational mission in educating critically minded managers for a civil society, and I would like to try to explain why I think that Critical Systems Thinking for Citizens might play an important part in achieving this mission.

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Let me begin with a few reflections on the first proposition, concerning the importance of civil competencies for a functioning civil society.

REVIVING THE IDEA OF A CIVIL SOCIETY

Our contemporary notion of citizenship is dominated by the concept of civil rights. Following the English sociologist Thomas H. Marshall, who in 1950 published his seminal study on *Citizenship and Social Class,* it has become customary to associate citizenship with three basic kinds of citizen rights: civil rights strictly speaking (civil liberties such as freedom of speech and other forms of the protection of the individual from the state); political rights (rights of political participation, typically by voting or by holding political office); and social and economic rights (the right to social security and

welfare). Marshall's (1950) influence was such that when we speak of 'civil rights' today, we usually mean all three kinds of citizen rights. That is to say, the incorporation of social rights into the concept of citizenship has become generally accepted, although their concrete meaning remains of course a matter of political dispute. Marshall (1950, p. 96) own position was that the incorporation of social rights meant to create 'a universal right to real income that is not proportionate to the market value of the claimant', an idea that comes surprisingly close to present-day calls for a guaranteed minimal income. His point is of course that without a minimal economic independence, it is not possible to exercise civil liberties and political rights of participation, so that citizenship risks to remain an empty concept. For a thorough account of Marshall's (1950) work and its importance for the development of modern citizenship theory, see Barbalet (1988).

In spite of the astonishingly modern aspects of Marshall's work, there are nevertheless some reasons to doubt whether his notion of citizenship is still sufficient today. The ongoing process of 'modernisation' has changed the meaning and relevance of classical citizen rights. The process of the 'rationalisation' of society, as the German sociologist Max Weber (e.g., 1970) could still designate the expansion of the spheres of scientific and bureaucratic rationality to ever more areas of life, appears to undermine the role of citizenship. Experience shows that conventional citizen rights do not enable citizens sufficiently to control this process and its repercussions upon their daily life worlds. It tends to render people 'incompetent' in matters that affect their daily lives. Ordinary people usually lack the skills to see through, or even argue against, the arguments of those who have the say in the omnipresent rationalisation processes that change people's lives, often enough also endanger their health, kill their jobs, and degrade the natural environment. This experience makes people feel powerless. Many stop to engage themselves actively in matters of public concern; they retreat to the private sphere of work and consumption and no longer care to exercise their rights of political participation.

The process of the 'rationalisation' of society appears to undermine the role of citizenship.

Another problem is that conventional citizen rights do not seem to address all the major issues that concern citizens today. Today's civil rights developed historically around major political struggles of the early days of capitalism and industrial class society, I am thinking especially of the social question. How could a capitalist society ensure a minimum of welfare and integration to the dependent working classes? While capitalism inevitably involves inequalities between social classes, citizenship involves rights that are recognised as belonging equally to all members of a society, independent of social class. Thus citizen rights were to ensure a certain redistribution of resources and chances of participation to the dependent working classes. Citizen rights became a source of social and political integration; they laid a basis for the subsequent development of the 'welfare state compromise' practised in the Western democracies after the Second World War (see, e.g., Bendix, 1964, p. 73; Barbalet, 1988, p. 83; Habermas, 1996, p. 501).

Important as these issues continue to be, they do not exhaust the universe of issues that move citizens today. As an example, we may think of the ecological question and, linked to it, the problem of achieving a sustainable world-wide economic and social development. Environmental hazards are no longer limited to certain social classes, they can affect everyone. Social rights may help those effectively affected to claim protection or compensation but they do little to prevent such hazards in the first place, for they do not enable citizens to control the production and distribution of risks.

A second example is provided by the issue of industrial democracy (democracy at the workplace), an idea that is not contained in Marshall's concept of civil rights, either. Although most of us spend much of our time at the workplace, this idea has remained scarcely developed in our actual practice of democracy.

A third example is the problem of securing the democratic control of science and technology. This problem is gaining importance because of the growing reach of our scientific and technological means, which poses new problems of ethical and democratic legitimation (cf. Ulrich, 1994). It may suffice to mention the problems of nuclear waste disposal or of genetic engineering.

As a last and somewhat different example, another source of the loss of meaning of citizenship that comes to mind is certainly the shift of ever more decisions that affect our lives to supranational decision-making levels.

Examples are provided by the currently much-discussed issues of European economic and political integration and of world-wide economic 'globalisation'. Citizenship in Marshall's comprehensive sense has been institutionalised thus far only at the level of the nation-state, which means that citizens cannot democratically control the increasing number of decisions that are taken at a supranational level but which affect their lives at the local and national levels. What supranational bureaucracies and 'global economic players' (multinational corporations) do or neglect to do affects many people whose citizens' rights do not effectively reach beyond the national boundaries. The free and easy movement of capital and of jobs across national boundaries is beyond democratic control even though it may have important effects at local and national levels.

This last example is different in nature from the previous examples. The core issue here is one of institutionalising a new global economic world order, one in which the range of application of citizen rights converges better than today with the range of action of private corporations and supranational bureaucracies. That is to say, this issue concerns more the wanting institutionalisation than the substance of citizen rights; in their substance, they concern basically the same kinds of issues — socioeconomic, ecological, ethical and other issues — which in the present economic world order are beyond the democratic control of those affected. So long as world citizenship and a democratically controlled world government are not institutionalised, and this may not happen very soon, the only solution may be to limit the 'freedom of the global market' in such a way that it does not undermine the freedom of citizens to control matters of collective interest democratically. This means limiting 'free markets' to areas and spaces for which institutionalised democratic processes can set norms of regulation. The European Union (EU) and other supranational economic unions that are emerging (e.g., ASEAN, MERCOSUR, NAFTA) could provide intermediate levels to this end. To take the example of the EU, it presently lacks provisions for the democratic control of the 'Five Freedoms' of the Common Market — the free movement of labour, of goods, of capital and payments, and the freedom of entrepreneurial establishment and to provide services. How the five freedoms are interpreted and regulated through the European executive, legislative, and judicial authorities affects the citizens of the member states considerably, but these authorities are at present accountable only to the governments of their respective member states. The EU today embodies a common market and a political union but not a civil society in the sense intended here. Europe has yet to set up institutions of corresponding democratic control, among them first of all a European citizenship, a European constitution and a European parliament elected by the people. Similar observations could be made with respect to the other economic unions and, at a global level, with respect to the United Nations. But again, this is an institutional issue of the future which is not in the centre of the concern of the present paper.

What these different examples have in common is that the issues in question reach beyond the participatory chances of citizens even though they may be of crucial importance for the development of our late-industrial society. Apart from the institutional problem just mentioned, the core problem appears to be the complexity of these issues. Granting to citizens the necessary rights of participation and democratic control is not enough to ensure effective participatory chances to them; if the issues are beyond their understanding, how can they argue their concerns in a competent manner? Is an ever increasing gap between citizen rights and the actual capability of citizens to participate inevitable?

Is an ever increasing gap between citizen rights and the actual capability of citizens to participate inevitable?

TOWARD A NEW COMPETENCE IN CITIZENSHIP

My conclusion from these considerations is that a different concept of citizenship is required today, one that would give a central part to civil *competencies* rather than to rights only. I propose to understand citizenship as a status that is constituted by civil competencies as much as by civil rights. Only thus can the role of the citizen effectively change toward 'active citizenship', a notion that Habermas (1996, p. 497) associates with the existing Swiss democracy but which (as a Swiss citizen) I prefer to associate with the idea of civil society. The ideal is to create a society in which ordinary people have an effective — and equal — chance of participating actively in the making of public opinion and political decisions; the reality, unfortunately, is less ideal. For too many people,

citizenship does not appear to mean much more than a number of rights (including the right of residence) that go along with a rather passive status of membership in a state.

I propose to understand citizenship as a status that is constituted by civil competencies as much as by civil rights.

But is such a change not illusory? Did we not just mention a number of examples suggesting an increasing loss of meaning of the concept of citizenship? Paradoxically, it seems that the growing awareness and frustration of many citizens, in Switzerland as in other countries, in view of their experience of incompetence and impotence is beginning to give rise to an amazing counter-movement: the notion of civil society is enjoying a new, unprecedented popularity. I am tempted to interpret this rediscovery of civil society (see, e.g., Cohen, 1983; Keane, 1988; Walzer, 1991; Seligman, 1992; Kumar, 1993; Hall, 1995, to mention just a few authors from a rapidly growing body of literature) as a positive symptom. As I have argued elsewhere (Ulrich, 1996c, p. 169f), there are other symptoms which suggests that a revival of civil society is announcing itself and in fact has already begun. For instance, it seems to me that in many societies we can observe a gradual shift of the essential *'locus of control'* (the actual steering centre) from institutions such as parliamentary democracy, government agencies and bureaucracy, science, and industrial corporations to citizens, citizen groups, and the public sphere. The mentioned institutions have historically been driving, and today continue to drive, the process of rationalisation, but the role of citizens nevertheless gets more important. A new, increasingly differentiated and decentralised kind of political culture (or perhaps, at times, subculture) appears to be emerging in many societies, a political culture in which an increasing number of citizens and citizen groups develop a new awareness and new skills of evaluating and influencing the activities and omissions of the 'old' steering centres.

To mention just a few such competencies that come to mind, citizens everywhere are learning to make better use of the public media, including the new possibilities of information access and exchange through world-wide communication networks; to organise themselves outside the mainstream of the established political system, I think for example of the phenomenon of the so-called New Social Movements, e.g. in support of peace, environmental protection, social justice, minority rights (e.g. gay rights), new ways of life (New Age Movement), and so on; to make the most of the available means of legal action and, at times, civil disobedience; to engage themselves in new participative forms of inquiry and planning such as citizens' action groups, consensus conferences, planning cells, citizen reports, stakeholder evaluation, or participatory action research; and finally, of most interest here, to increase their critical competence vis-à-vis the rationality claims raised by vested interests or by the experts and political lobbies who serve these interests.

Now this is not to deny that there also exist important counter-tendencies toward increasing political abstinence (especially on the part of young people); but the symptoms of a deinstitutionalisation and decentralisation of political processes appear more significant to me. The phenomenon of political abstinence within the 'old' political system is probably itself an expression of the shift of the political to new political arenas, it need not necessarily mean a general loss of political interest. Citizens turn away from the institutionalised political system (which, they feel, does not give them a sufficiently competent and meaningful role) rather than from the *res publica* as such. Take, for example, the observation that when environmental issues are at stake, citizens in many societies increasingly dare to 'think themselves', quite according to Kant's motto of the Enlightenment: 'dare to know!'. Who else, if not active citizens, can ultimately be expected to be in charge of controlling the increasingly threatening repercussions of the 'rationalisation' process upon the social life world?

But of course, we must not rely on wishful thinking. The issue is not whether a revival of civil society is actually happening but rather, whether and how systems ideas can contribute to the development of civil society. It is now time to turn to the second of my three initial propositions. It says that systems thinking may indeed contribute to competent citizenship, and thus to a revival of civil society. For this to become possible, though, we must reconsider our understanding of the systems idea. We must find ways to translate systems thinking into a language that ordinary people can understand and are willing to use, and which is really capable of empowering them in a new and meaningful way. In what way, then, can systems thinking contribute to competent citizenship?

REVIVING THE SYSTEMS IDEA

Systems thinking will hardly succeed in giving citizens a new competence *as citizens* if it attempts to turn them into systems scholars or experts of any kind. We should face the fact that ordinary citizens will probably always have a disadvantage of knowledge and skills in comparison to experts, as well as a disadvantage of status and influence in comparison to the powerful. We must try to find a source of competence in citizenship that would be independent of any specific expertise.

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Rather than presupposing a symmetry of knowledge, skills, and power between the ordinary citizen on the one hand, experts and office holders on the other, let us try to employ the systems idea for the purpose of dealing effectively with the usual asymmetry of resources. The challenge then consists in employing the systems idea as a countervailing force, as it were. I claim that we can accomplish this by uncovering the *critical kernel of the systems idea.*

The critical kernel of the systems idea consists in its reminding us of two fundamental limitations of knowledge. The first is that all our claims to knowledge, understanding, and rationality imply that we consider 'the whole' relevant system; the second, that in consequence we can rarely if ever be certain to know and understand enough. This is so because even where an issue or situation is well defined, the job of considering the whole relevant system is by no means a trivial matter: it requires us to understand all conceivable options of viewing the situation, and thus to explore all those known and unknown conditions within and outside the situation that could possibly have some bearings on our claims — an undertaking that finds no natural boundary.

In order to keep this requirement within reasonable limits, so that we may hope to achieve some certainty as to whether our claims to knowledge, understanding, and rationality do consider the whole relevant system, we would have to know or decide beforehand what *is* 'the whole'; that is, we would need to be able to bound the whole system in an objective and definitive way. But there is only one system of which we can say for certain that it represents the whole system, namely, the universe; all other systems need to be distinguished from the universe by means of boundary judgements. For all practical purposes, *there is no system without environment,* and how we draw the line between the 'system' and the 'environment' is a matter of judgement. This is why the concept of *boundary judgements* is so fundamental to any critical employment of the systems idea (Ulrich, 1983, p. 225ff). Boundary judgements are the conceptual border lines which distinguish the system of concern from its physical and social environment; that is, they define the *borders of concern.*

In careful systems thinking, we need to qualify the system/environment distinction further by distinguishing between the relevant and the irrelevant environment. A part of the universe is *'relevant environment'* if it does not belong to the system of concern but nevertheless influences the system; it is irrelevant environment (or simply a part of the universe) if it does not influence the system or if the way in which it influences the system is of no concern. We thus have got two different types of boundary problems, that of demarcating the system of concern from the (relevant) environment and that of demarcating the environment from the universe. My following remarks apply mainly to the first problem.

Boundary judgements are the conceptual border lines which distinguish the system of concern from its physical and social environment; that is, they define the borders of concern.

In my specific approach to critical systems thinking, 'critical systems heuristics', a third type of boundary problem is important, that of drawing the line between the system of concern and the *'context of application'*. The context of application refers to that part of the universe which is influenced by the system. It represents to me a necessary counter-concept to the environment; for considering the environment merely ensures a 'strategic' concern for success, but considering the context of application implies a concern for the consequences that a proposal may impose upon third parties. The context of application is that conceptual part of the universe in which the normative content of a proposition or rationality claim becomes effective and visible

(see Ulrich, 1987, p. 276 and p. 278; 1993, p. 592f).

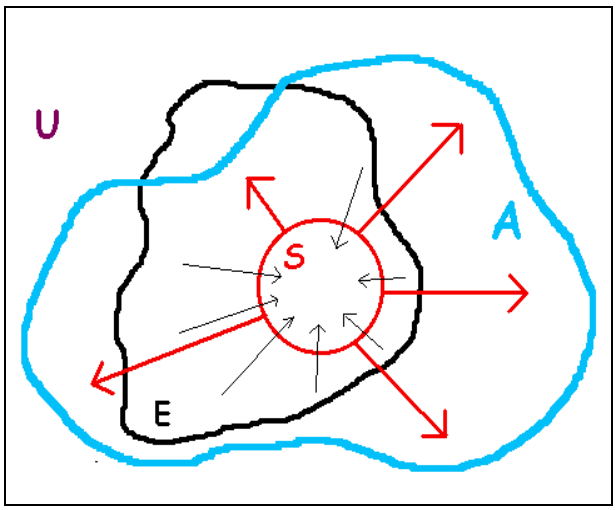

Fig. 1: Boundary judgements as borders of concern. S = system of primary concern; E = relevant environment; A = context of application; U = universe. The problem of bounding the system of primary concern leads to two additional boundary problems, that of demarcating the environment and that of demarcating the context of application. These two concerns can be distinguished as follows: if the issue is whether some part of U influences S in a relevant way, then we are concerned with E; if however the issue is whether some part of U is influenced in a relevant way by S, then we are concerned with A.

FIGURE 1 illustrates the three types of boundary problems. For my present purpose of explaining the critical kernel of systems thinking, however, the general notion of a conceptual boundary of concern is quite sufficient.

This critical kernel of the systems idea offers us a basis for giving citizens a meaningful critical competence vis-à-vis experts and professionals. The crucial point is that when it comes to making boundary judgements, experts and professionals have no natural advantage of competence over lay people. Professional expertise does not protect against the need for making boundary judgements; on the contrary, it depends on them just like everyday knowledge. Nor does it provide an objective basis for defining boundary judgements. Since the 'facts' (observational statements) that are to be considered relevant change with our boundary judgements, and vice-versa; and since new facts or different boundary judgements may moreover require us to change our 'values' (value judgements), that is, the way we evaluate facts, it is clear that boundary judgements strongly influence the outcome of any professional as well as everyday discourse. (**FIGURE 2**)

In everyday language we might say that our boundary judgements determine the *partiality* (selectivity) which is inherent in all our claims to rationality. This partiality need not be motivated by egoism or ideology or other forms of conscious siding with any group of people or interests, as in party politics or legal proceedings; it simply mirrors our usual failure to reach comprehensive knowledge, understanding, and rationality.

Note, however, that the systems idea is not the cause of the problem but only the messenger who brings us the bad news; accusing the messenger of the bad news will help as little as ignoring the news (Ulrich, 1981, and 1983, p. 225). Nor is the systems idea the solution of the problem; its message is not that we actually need to achieve comprehensive knowledge and understanding of whole systems, rather it admonishes us to reflect on the ways in which we may fail to consider the whole relevant system.

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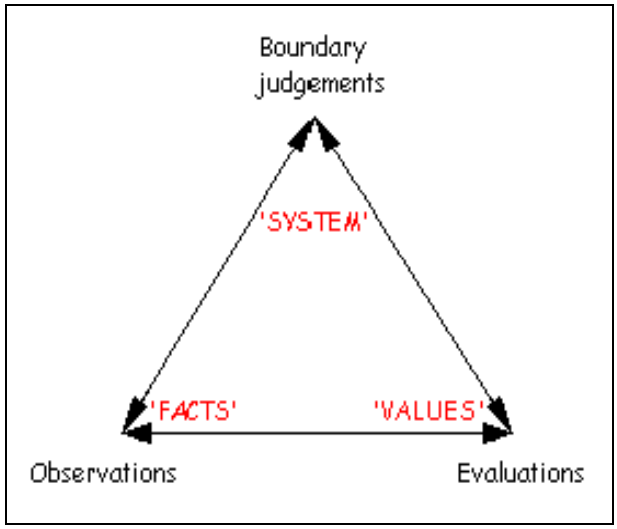

Fig. 2: The interdependence of boundary judgements, observations, and evaluations. The 'facts' we observe, and how we evaluate them, depend on how we bound the system of concern, as well as the relevant environment and the context of application. Different value judgements can make us change boundary judgements, which in turn makes the facts look different. Knowledge of new facts can equally make us change boundary judgements, which in turn makes previous evaluations look different, etc.

In other words, the systems idea obliges us to take the '*critical turn*' which I have described on several previous occasions (e.g., Ulrich, 1983, p. 224f; 1993, p. 587ff; 1994, p. 35; 1998a, p. 8; 1998b, p. 20ff). Since from a critical point of

view we must always assume that we may not sufficiently know and understand the whole relevant system on which our claims depend, we must also assume an inherent partiality of our findings and conclusions. Thus the systems idea compels us to make clear to ourselves and to all others concerned this 'built-in' partiality.

It follows that whatever counts as rational, i.e., which propositions we consider to be 'true' and 'right', always has a normative content in need of critical examination. Different boundary judgements will produce different findings and problem solutions and thus affect different groups of people differently; the decision on what are the proper boundary judgements is not, therefore, primarily a matter of theoretical or methodological expertise but rather one of democratic legitimation.

The epistemological implications of this concept of boundary judgements are significant. It means that in spite of the usual asymmetry of knowledge and skills between ordinary citizens and professional people there exists, at a deeper layer, a fundamental symmetry between them. At this deeper layer, professional people are in a situation that is no different from that of lay people. Their professional judgements depend no less on boundary judgements than everyday judgements. Citizens and experts here meet as equals. Critical systems thinking thus teaches us a truly important lesson in citizenship: below the surface of expert knowledge and professional behaviour, there exists a *deep symmetry* of all claims to knowledge and rationality, whether professional or not. All such claims depend on boundary judgements which cannot be justified by reference to 'facts' or expertise. In this regard, experts find themselves in the same situation as ordinary citizens, which means that this deep symmetry of all rationality claims is also a deeply democratic symmetry.

Critical systems thinking teaches us a truly important lesson in citizenship: below the surface of expert knowledge and professional behaviour, there exists a deep symmetry of all claims to knowledge and rationality, whether professional or not.

Rationality and democracy need not be opposites, after all! The critical kernel we associate with systems thinking thus unfolds into a fundamental *emancipatory potential.*

CRITICAL SYSTEMS HEURISTICS

The question is, can we realise this potential? Can we translate this critical kernel of the systems idea into strategies for training citizens in citizenship, without presupposing cognitive skills that are not available to most of them?

Can we translate this critical kernel of the systems idea into strategies for training citizens in citizenship?

If we are to meet this challenge, we have to be careful that we do not inadvertently fall back upon a concept of the 'competent' citizen that would again exclude most ordinary people. It seems to me that present conceptions of critical systems thinking, due to their focus on the informed choice and application of methods, do not avoid this kind of elitist implication. Critical systems thinking *for citizens* should avoid this pitfall from the start. It must not depend on any special cognitive competence. Citizens are not, and will never be, equally skilled; but in democracy this fact must not make any difference to the equality of citizens as citizens, according to the principle: 'one citizen, one vote'.

It is the goal of my critical systems heuristics (or simply critical heuristics; see Ulrich, 1983) to develop such an emancipatory systems approach. After what has been said thus far, even readers not familiar with critical heuristics will probably anticipate that one of its core concepts for achieving its end is a process of *systematic boundary critique,* and that the main vehicle driving this critical process is the *critical employment of boundary judgements* (Ulrich, 1983, pp. 225-314; 1987; 1993). The idea, briefly, is that boundary judgements offer themselves for three kinds of critical employment:

(1) Reflective practice through *critically-heuristic self-reflection:* What are the boundary judgements presupposed in what I believe or claim to be true or right? What is the normative content of these boundary judgements, as measured not only by their underpinning value assumptions but also by their live practical implications, i.e., the ways they might affect other people? Should I consider alternative boundary judgements, and what would be their normative content? What *ought* to be my boundary judgements so that I can justify them vis-à-vis those concerned?

(2) Dialogical search for mutual understanding and possible consensus through *critically-heuristic deliberation:* Why do our opinions or validity claims differ? What different boundary judgements make us see different 'facts' and 'values'? How does my position look if I adopt my partner's boundary judgements, and vice-versa? Can we agree on differing boundary judgements, and if we cannot agree, can we at least understand and respect why we disagree?

(3) Controversial debate through the *polemical employment of boundary judgements:* How can I make visible to others the ways in which my opponent's propositions depend on boundary judgements that have not been declared openly but which are debatable? How can I argue against an opponent's allegation that I do not know enough to challenge him or her? How can I make a cogent argument even though I am not an expert and indeed may not be as knowledgeable as the opponent with respect to the issue at hand?

Boundary judgements offer themselves for three kinds of critical employment:

❶ **critically-heuristic self-reflection**

❷ **critically-heuristic deliberation**

❸ **the polemical employment of boundary judgements.**

All three types of boundary critique can help people deal with the empirical ('facts') and normative ('values') selectivity of propositions in a competent and critical way, by enabling them to make transparent to themselves and to others how both 'facts' and 'values' depend on the choice of systems boundaries. Their optional character, i.e., the availability of alternative ways to bound the system of concern, along with the unavailability of any 'objective' justification for the chosen boundaries of concern, should become clear and the normative presuppositions and conceivable consequences of all options should be visible. Finally, the unreflecting or even consciously covert use of boundary judgements by experts or decision makers should give way to an openly and critically normative employment, and democratic legitimation, of boundary judgements.

Lest this last goal should depend entirely on the readiness of experts and decision makers to disclose their boundary judgements, the self-critical handling of boundary judgements which is important in types 1 and 2 of boundary critique is complemented in type 3 by their employment *against* those who are not willing to handle their boundary judgements so self-critically. The 'polemical' use of boundary judgements aims to make visible the operation of power, deception, dogmatism of other non-argumentative means behind rationality claims. It accomplishes this purpose by creating a situation in which a party's reliance on non-argumentative means to support boundary judgements becomes apparent.

The idea is that whenever a claim depends crucially on some boundary judgements that are taken for granted rather than being disclosed and critically discussed, or which are even consciously hidden or asserted dogmatically (e.g. with reference to superior expertise), then the importance and the optional character of these boundary judgements can be exposed by advancing alternative boundary judgements and showing how the claim in question now looks different. The other side is then forced to defend its boundary judgements but is of course quite unable to prove why they should be of superior validity.

Experts caught in such embarrassing situations tend to take refuge in their advantage of knowledge and try to argue that a non-expert's objections are 'merely subjective' or 'incompatible with the facts'; but that will do little to establish the objective necessity of their own boundary judgements. On the contrary, once it has become plain that defining the system of concern is at bottom a subjective political act, experts who insist on their superior qualification or objectivity with regard to boundary judgements actually disqualify themselves. The 'deep symmetry' of which I have spoken is thus brought to the surface and creates a situation of improved argumentative equality, or what I have elsewhere described as a 'symmetry of critical competence' (Ulrich, 1993, p. 604f).

In this way ordinary citizens may not only learn to see through the appearance of objectivity and rationality behind which people with an advantage of knowledge and power tend to conceal their boundary judgements, they may also begin to understand that (and why) this advantage is quite insufficient a basis for defining the system of concern or for suppressing discussions on alternative conceivable borders of concern. They are then able to shift the 'burden of proof', as it were, and challenge the experts' claims to rationality *without* needing to be experts themselves.

Citizens may learn to see through the appearance of objectivity and rationality behind which people with an advantage of knowledge and power tend to conceal their boundary judgements ...

What is more, this kind of emancipatory use of boundary judgements represents an entirely rational and therefore *cogent* way of argumentation. Following Kant's (1787, p. B767) concept of the polemical employment of reason — a concept that I have discussed elsewhere in detail (see Ulrich, 1983, pp. 301-310) — I call this type of argument *'polemical',* for it is distinctive of a polemical argument that its critical force and its rationality do not depend on any positive validity claim. Since it serves not a theoretical purpose of asserting knowledge but rather an emancipatory purpose of exposing the dogmatic assertion of knowledge, what matters is not that it is able to establish a positive claim to theoretical truth or normative rightness (or both) but only that nobody can prove it wrong by virtue of an advantage of expertise. This is precisely what an openly subjective advancement of alternative boundary judgements achieves! Just as it cannot be proven true or right (or 'objectively necessary', as experts like to claim) by theoretical means, it equally cannot be proven to be objectively wrong. Thus citizens who use boundary judgements in this critical way need not be afraid that they will immediately be convicted of lacking expertise or competence. Because a merely critical use of boundary judgements entails no theoretical or normative validity claim, no theoretical knowledge or any other kind of special expertise or competence is required. This is why I believe that the concept of boundary critique offers us a key to making accessible a new critical competence to citizens. I know it sounds like squaring the circle, but it seems to me that we have indeed identified here a new, untapped source of civil competence. (For a more detailed account and some examples, see Ulrich, 1983, pp. 305-310; 1987, p. 281f; and 1993, pp. 599-605.)

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The reader who has followed me thus far will now want to know concretely how the boundary judgements in question look like. Obviously the general concept of boundary judgements needs to be operationalised so that people can apply it, i.e., can identify and discuss boundaries of concern systematically. With special regard to the domain of the applied sciences and of social practice (including, e.g., such diverse fields as management, planning, public policy, social work, program evaluation, etc., as well as everyday problem solving and decision-making), critical heuristics has developed a conceptual framework that defines twelve basic boundary problems (see **FIGURE 3**).

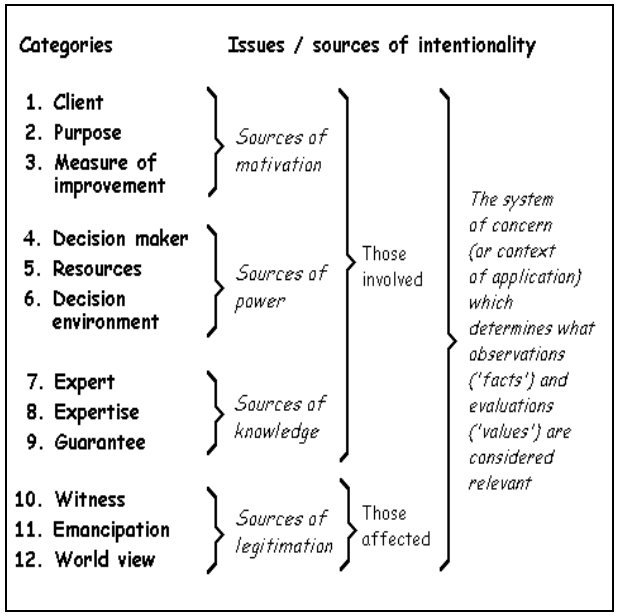

Fig. 3: Table of critically-heuristic categories. They refer to twelve basic boundary problems that pose themselves whenever issues of applied science or everyday social practice are to be dealt with in a critical way. The first category of each group refers to a social role, the second to role-specific concerns, and the third to key problems in dealing with the clash of different concerns that is characteristic of social reality. Each category requires boundary judgements in respect of both what is and what ought to be the case. Together these boundary judgements define the system of concern (or, in meta-level reflection on the system of concern, the context of application) on which depend statements of 'fact' and 'value'.

In Kantian language, these twelve critically-heuristic boundary concepts represent categories of relative *a priori* judgements. They are *a priori* in that they come logically and temporally prior to analysing or describing an issue; and they are *relative* in that they are not prior to all possible experience and evaluation in general (as Kant claims for his *a priori* categories of theoretical and practical reason) but only to the experience and evaluation of an

issue at hand. As we have seen earlier in this paper, before we can meaningfully discuss an issue in terms of relevant 'facts' and 'values', we need to assume boundary judgements concerning the 'system' of concern; and this now takes the meaning that we have to give empirical and normative content to these twelve abstract boundary categories. Whenever we make 'always already' — consciously or not — assumed what is or should be the content of these categories (cf. Ulrich, 1983, pp. 188-193).

Like Kant's categories, the categories of critical heuristics are arranged in four groups of three categories each, but their intent is quite different. Unlike Kant's categories, the critically-heuristic categories are not derived from Aristotelian formal logic (cf. Ulrich, 1983, p. 206) but rather from sociological considerations, that is, they address the *social actors* whose views and intentions are constitutive of the system of concern. (For an explanation of the systematic derivation of the categories, see Ulrich, 1983, pp. 231-258, and 1996a, pp. 19-22).

The first category of each group refers to a social *role* (rather than an individual person) who is or should be involved in defining the system of concern.

The second category addresses *role-specific concerns* that are or should be included.

The third category relates to *key problems* that are crucial for understanding the previous two boundary judgements. For instance, with respect to the first group of boundary categories, we cannot understand the 'purposes' (concerns) which really are constitutive of the relevant system of concern unless we can define the trade-offs between competing purposes, i.e., we can determine to what extent the 'client' (the group of those who are to benefit) is willing to sacrifice one purpose in favour of another; to define an unequivocal 'measure of improvement' means to clarify this key problem of the first group.

The four groups of categories are intended to address the following sources of human intentionality. The first group asks for the *sources of motivation* that condition the definition of the system of concern; the second group is to examine the *sources of power;* the third is to identify the *sources of knowledge and expertise;* and the fourth group, finally, asks for the *sources of legitimation*.

Corresponding to the thus-defined boundary problems, we can distinguish twelve types of boundary judgements of which it can be shown that they are inherent in any kind of practical rationality claim and therefore have critical significance for reflective practice and emancipatory argumentation. One way to introduce — and use — them is by way of a checklist of *boundary questions* (see **TABLE 1**).

This way of introducing the boundary judgements offers the advantage that it serves as a *step-by-step guide* for systematic boundary critique.

An additional advantage is that the need for reviewing boundary judgements both in the descriptive ('IS') and in the normative ('OUGHT') mode can be made explicit. It is indeed imperative that the boundary questions be employed in both ways, so that differences between 'is' and 'ought' answers are identified and can drive the process of unfolding the partiality of the system of concern further. This allows for more *rigor* in dealing with questions of 'fact' as well as with questions of 'value', in that it becomes clear at all times in what precise way statements of facts and value judgements are interdependent.

Moreover, the systematic opposition of 'is' and 'ought' boundary judgements allows for *evaluations without any illusion of objectivity,* in that the actual selectivity of the system of concern ('is') can be traced and judged against an openly declared normative background — the evaluator's postulated boundaries of concern ('ought').

The process of determining the normative background in terms of boundary judgements may also become an object of creative reflection and debate that is valuable in itself, e.g., as a basis for problem solving, planning or search for consensus. To this end we can combine the boundary judgements with discursive methods of ends planning and particularly with *idealised design* in Ackoff's (1974, pp. 26 and 29f; 1981, pp. 104ff) and Churchman's (1979, p. 82f) sense. This specific application of the critically-heuristic question offers a useful operationalisation of the general idea of idealised design; in *Critical Heuristics* (Ulrich, 1983) it is called 'ideal mapping' as distinguished from 'actual mapping', sometimes I also speak of 'ideal planning' as distinguished from 'real planning'.

Finally, the opposition of 'is' and 'ought' boundary judgements offers a systematic basis for non-objectivistic evaluation in a second sense, namely, for *pluralistic evaluation:* evaluation can (and should) now refer to alternative postulated systems of concern.

SOURCES OF MOTIVATION

(1) Who is (ought to be) the ***client***? That is, whose interests are (ought to be) served?

(2) What is (ought to be) the ***purpose***? That is, what are (ought to be) the consequences of the inquiry or design?

(3) What is (ought to be) the ***measure of improvement***? That is, how can (should) we determine whether and in what way the consequences, taken together, constitute an improvement?

SOURCES OF POWER

(4) Who is (ought to be) the ***decision maker***? That is, who is (ought to be) in a position to change the measure of improvement?

(5) What ***resources*** and other conditions of success are (ought to be) controlled by the decision maker? That is, what conditions of success are (should be) controlled by the decision-making body?

(6) What conditions are (ought to be) part of the ***decision environment***? That is, what conditions does (should) the decision maker *not* control (e.g., from the viewpoint of those not involved)?

SOURCES OF KNOWLEDGE

(7) Who is (ought to be) considered an ***expert***? That is, who should involved as researcher, planner or consultant?

(8) What ***expertise*** is (ought to be) brought in? That is, what is (should) count as relevant knowledge or know-how, and what is (should be) its role?

(9) Who or what is (ought to be) assumed to be the ***guarantor***? That is, where do (should) those involved seek some guarantee that their findings or proposals will be implemented and will secure improvement?

SOURCES OF LEGITIMATION

(10) Who is (ought to be) ***witness*** to the interests of those affected but not involved in the inquiry or design process? That is, who argues (should argue) the case of those who cannot speak for themselves but may be concerned, including the handicapped, the unborn, and non-human nature?

(11) To what extent and in what way are those affected given (ought they be given) the chance of ***emancipation*** from the premises and promises of those involved? That is, how do we treat those who may be affected or concerned but who cannot argue their interests?

(12) What ***world view*** is (ought to be) determining? That is, what are (should be) the visions of 'improvement' of both those involved and those affected, and how do (should) we deal with differing visions?

Table 1: Checklist of critically-heuristic boundary questions for systematic boundary critique. Each question has to be answered both in the IS and in the OUGHT mode. There are no definitive answers, in that boundary judgements may always be reconsidered. By means of systematic alteration of boundary judgements, it is possible to unfold the partiality (selectivity) of an assumed system of concern (or context of application) from multiple perspectives, so that its empirical and normative content can be identified and evaluated without any illusion of objectivity.

With this overview of a few different applications of the critically-heuristic boundary judgements, I would like to conclude this brief introduction to critical heuristics; not without mentioning, though, that its conceptual framework comprises more than the boundary categories and questions just introduced.

The reader who has not been exposed to critical heuristics before may think that all this is quite nice but so abstract and complex that it is difficult to see how ordinary citizens could apply it. Are we not dealing here with fundamental philosophical difficulties of the systems idea and of the theory of knowledge and rationality in general, e.g., concerning the unavailability of comprehensiveness and objectivity? Precisely! If the concept of boundary judgements is indeed fundamental to everyday speech and argumentation, it must be possible to explain its emancipatory implications to ordinary citizens. It is true, the concept is of a genuinely systems-theoretical nature, and systems theory is probably beyond the interest and understanding of most ordinary citizens. But at the same time, the concept is so elementary that grasping it can hardly be reserved to systems theorists. Boundary judgements are not an esoteric invention of mine, they are an all-pervasive everyday reality; so why should it be impossible in principle to demonstrate their importance by means of everyday language and everyday examples?

Boundary judgements are an all-pervasive everyday reality; so why should it be impossible to demonstrate their importance by means of everyday language and everyday examples?

Do we really need systems language to explain the notion that the practical meaning of a proposition (the 'difference' it makes in practice) depends on how we bound the system of reference? It seems to me quite sufficient to talk of the relevant 'situation', or of the definition of the 'problem', or of the section of the real world we are interested in, the 'context', and so on. Similarly, instead of using the abstract notion of boundary judgements, we can speak of 'borders of concern', and so on.

It should equally be possible to demonstrate the importance of boundary judgements by taking everyday examples, e.g. political debates.

People will be able to understand that if they frequently find themselves at cross-purposes (sic!) with others, it is not because those who hold different views are usually idiots or have totally abstruse basic values, but rather because they orient themselves by different borders of concern. Whenever this happens, and it seems to be the rule rather than the exception, we must actually expect people to talk at cross-purposes, simply because there concerns are of a different nature. It is only because people are not aware of the role of boundary judgements that they get the impression that the other side is arguing so irrationally or lacking in any objectivity!

I do not mean to say, of course, that it will by any means be easy to pragmatise these critical systems ideas. But I do think that once we fully understand the basic systems-theoretical problems, it must indeed be possible to translate them into the language of ordinary people. The main difficulty may be of a didactic rather than a principal nature.

Nor do I mean to claim that I personally will be able to do the job. It may well be that others will be better qualified, for instance because they understand more of didactics than I do. I see my role as laying a theoretical basis for this. In any case, I am convinced that the project is worth trying; that systems thinking has a true potential to contribute to civil society. I will continue to explore this potential. The risk of failure is inherent in any exploration of new land, it provides no counter-argument. If in the end it should turn out that the undertaking is too difficult (at least for myself), I trust others will continue the work. He who fails does not have to blame himself for trying; but he who fails to try will have to blame himself indeed.

CONCLUSION: SYSTEMS THINKING, SYSTEMS MANAGEMENT, AND CITIZENSHIP

As announced at the beginning, I would like to close by considering some implications of what I have been trying to say for a future concept of good and rational management.

Since I find myself engaged here in a newly-founded School of Management with a promising future, it is perhaps not entirely unsuitable to suggest that such a concept should be future-compatible. Which is to say, it should assign to management — or better, to the future managers we aim to educate — a major responsibility for creating options for a sustainable and prosperous future. Or, to put it bluntly, a proper concept of good management education today should enable, and indeed require, future managers to lead us out of the mess that past and present notions of good management have created!

From our previous considerations concerning the problem of boundary judgements we can deduce that the question of how managers conceive of managerial problems, and what solutions they perceive as 'rational' solutions, has a lot to do with their boundary judgements. Think, for example, of the imperative quest for ecological sustainability of industrial production: it requires us increasingly to include within our boundaries of concern future generations and non-human nature.

Or think of the old managerial task of ensuring proper accounting: which costs managers include in their financial calculations, and which other costs they externalise, i.e., treat as external social and economic costs that may be imposed upon third parties or society-at-large, again depends on boundary judgements that managers build into their concepts of proper accounting.

How managers conceive of managerial problems, and what solutions they perceive as 'rational' solutions, has a lot to do with their boundary judgements.

We should not, of course, expect managers to be idealistic altruists and to neglect their core business of making business, but we should expect — and train — competent managers to reflect on their boundary judgements and to seek for ways, together with concerned citizens, of adapting them as much as possible to societal needs.

Some day citizens may begin to pay more attention than at present to the boundary judgements behind managerial decisions that affect them. They will then want to challenge these decisions both argumentatively and through their decisions as consumers. So managers should have every interest to understand early on how to deal in a reflective and competent way with managerial boundary judgements. It cannot be too early for management education to begin to prepare future managers now and to form their understanding of competent management accordingly. In this new understanding of management, competent management has

something to do with competent citizenship; far from being in opposition to it, it will depend on it.

I do not want to be misunderstood. In spite of the increasingly important role that I would like to assign to competent citizenship, and that is, to ordinary citizens, I am convinced that management will remain a key function in society, one that requires the best people and should be fulfilled as professionally as possible. I am not arguing against professionalism, only against our contemporary notion of professional competence, with particular reference to management. This present notion is a rather superficial one, it seems to me, in that it ignores the 'deep symmetry' of professional and non-professional judgement. Because it ignores the role of boundary judgements, it suffers not only from a defect of modesty and self-reflection but also from a lack of practical relevance and usefulness as a source of orientation for ensuring good professional practice. Academically trained managers engaged in responsible positions could tell us about that!

For the same reason, present-day notions of professionalism wrongly put non-professional people in a situation of incompetence. They thereby miss an important source of motivation, as well as of knowledge and legitimation. As a result, they have found no proper way of mediating between theory and practice, between expertise and politics, between 'facts' and 'values'. I have dealt extensively with these issues in a previous working paper in this series and hence need not repeat myself here (see Ulrich, 1998b).

The point, ultimately, is not to renounce professionalism but to deepen our understanding of it. We would certainly be well-advised to incorporate into our notion of professional competence the 'critical turn' which systems thinking, if only we take it seriously enough, compels us to take.

So why not prepare today's management students for their future jobs by training them not only to master technical management know-how instrumentally, but also to handle such know-how professionally, by taking the critical turn towards a reflective kind of competence? One among many conceptual tools for this may be the one I have proposed in this paper, the tool of systematic boundary critique.

A vision that could motivate and sustain such a self-critical stance might be competent citizenship. If we educate managers to associate their professional competence with competent citizenship, they will not only gain a deeper understanding of their own societal role but will also be prepared to give ordinary citizens a competent role to play in the societal definition and legitimation of good, professional, managerial decisions.

To conclude, from the point of view of Critical Systems Thinking for Citizens I cannot think of a more meaningful vision for a truly systemic concept of rational management than that of *management as competent citizenship*.

I cannot think of a more meaningful vision for a truly systemic concept of rational management than that of management as competent citizenship.

I don't know whether you, the reader, agree; but if you do, you will not need to give young people the kind of advice that the German satirist Karl Kraus is reported to have given to a student who wanted to study business ethics and which I here adapt a little to the critical study of systems management:

'You want to study critical systems thinking in management? Then decide yourself for the one or the other!'

This, I take it, cannot be the answer that a newly founded School of Management, with an innovative Centre for Systems Research, offers its students. Let us rather decide ourselves for both, professional management *and* critical systems thinking. Let us try together to develop a concept of systems thinking in management that can make a difference. Let us educate future managers in systems thinking as if citizens mattered.

REFERENCES

Ackoff, R.L. (1974). *Redesigning the Future.* A Systems Approach to Societal Problems. Wiley, New York.

Ackoff, R.L. (1981). *Creating the Corporate Future.* Plan or Be Planned For. Wiley, New York.

Barbalet, J.M. (1988). *Citizenship: Rights, Struggle and Class Inequality.* Open University Press, Milton Keynes, England.

Bendix, R. (1964). Transformation of Western European societies since the eighteenth century. In R. Bendix, *Nation-Building and Citizenship,* Wiley, New York.

Churchman, C.W. (1979). *The Systems Approach and its Enemies.* Basic Books, New York.

Cohen, J. (1983). *Class and Civil Society: The Limits of Marxian Critical Theory.* University of Massachusetts Press, Amherst, Mass.

Habermas, J. (1984-87). *The Theory of Communicative Action.* 2 vols. (Vol. 1 1984, Vol. 2 1987). Beacon Press, Boston, Mass., and Polity, Cambridge, UK.

Habermas, J. (1996). Citizenship and national identity. Appendix II in J. Habermas, *Between Facts and Norms,* Polity Press, Cambridge, UK, pp. 491-515.

Hall, J.A. (ed.) (1995). *Civil Society: Theory, History, Comparison.* Polity Press, Cambridge, UK.

Kant, I. (1787). *Critique of Pure Reason.* Second ed. (first ed. 1781). Transl. by N.K. Smith, St. Martin's Press, New York, 1965 (orig. Macmillan, New York, 1929).

Keane, J. (ed.) (1988). Civil Society and the State: New European Perspectives. Verso, London.

Kumar, K. (1993). Civil society: an inquiry into the usefulness of a historical term. *British Journal of Sociology,* 44.

Marshall, T.H. (1950). *Citizenship and Social Class and Other Essays.* Cambridge University Press, Cambridge, UK. Also in T.H. Marshall, *Class, Citizenship and Social Development,* Greenwood Press, Westport, Conn., 1973, pp. 65-122.

Seligmann, A.B. (1992). *The Idea of Civil Society.* Free Press, New York.

Ulrich, W. (1981). On blaming the messenger for the bad news. *Omega, The International Journal of Management Science* 9, *7*.

Ulrich, W. (1983). *Critical Heuristics of Social Planning: A New Approach to Practical Philosophy.* Haupt, Bern, Switzerland, and Stuttgart, Germany. Paperback edition Wiley, New York, 1994.

Ulrich, W. (1987). Critical heuristics of social systems design. *Europ. J. of Operational Research, 31,* 276-283. Reprinted in M.C. Jackson, P.A. Keys and S.A. Cropper (eds.), *Operational Research and the Social Sciences,* Plenum Press, New York, 1989, pp. 79-87, and in R.L. Flood and M.C. Jackson (eds.), *Critical Systems Thinking: Directed Readings,* Wiley, New York, 1991, pp. 103-115.

Ulrich, W. (1988). Systems thinking, systems practice, and practical philosophy: A program of research. *Systems Practice, 1,* 137-163. Reprinted in R.L. Flood and M.C. Jackson (eds.), *Critical Systems Thinking: Directed Readings,* Wiley, New York, 1991, pp. 245-268.

Ulrich, W. (1993). Some difficulties of ecological thinking, considered from a critical systems perspective: A plea for critical holism. *Systems Practice, 6,* 583-611.

Ulrich, W. (1994). Can we secure future-responsive management through systems thinking and design? *Interfaces, 24,* No. 4, 26-37.

Ulrich, W. (1995). *Critical Systems Thinking for Citizens: A Research Proposal. Research Memorandum, 10.* Centre for Systems Studies, University of Hull, Hull, England, 28 November 1995.

Ulrich, W. (1996a). *A Primer to Critical Systems Heuristics for Action Researchers.* Centre for Systems Studies, University of Hull, Hull, England, 31 March 1996.

Ulrich, W. (1996b). Critical systems thinking for citizens, or: Systems thinking as if people mattered. In Lasker, G.E. (ed.), *Advances in Sociocybernetics and Human Development, Vol. III,* International Institute for Advanced Studies in Systems Research and Cybernetics, Baden-Baden, Germany, pp. 28-32.

Ulrich, W. (1996c). Critical systems thinking for citizens. In R.L. Flood and N.R.A. Romm (eds.), *Critical Systems Thinking: Current Research and Practice,* Plenum, New York, pp. 165-178.

Ulrich, W. (1998a). Praxiolology, action research, and critical systems heuristics. In W. Gasparski and D. Botham (eds.), *Praxioloy, The International Annual of Practical Philosophy and Methodology, Vol. 6,* Transaction Publishers, New Brunswick, New Jersey, pp. 1-11.

Ulrich, W. (1998b). *If Systems Thinking is the Answer, What is the Question?* The Quest for Competence in Systemic Research and Practice. *Working Papers No. 22,* Lincoln School of Management, Lincoln, England.

Walzer, M. (1991) The idea of civil society. *Dissent,* Spring.

Weber, Max (1970). *From Max Weber: Essays in Sociology.* H.H. Gerth and C. Wright Mills (eds.). Routledge and Kegan Paul, London.

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