

# **Critical Systems Heuristics: Application of an Emancipatory Approach for Police Strategy Toward the Carrying of Offensive Weapons**

**Robert L. Flood<sup>1</sup> and Michael C. Jackson<sup>1</sup>**

*Received November 6, 1990; revised March 3, 1991*

---

Critical systems heuristics (CSH) is explored in this article. It is an emancipatory approach to problem solving. Its philosophy and principles are presented. Methodological guidelines and an application for police strategy toward the carrying of offensive weapons are given. A critique of the philosophy, principles and methodology is provided. Room is left for the reader to extend our analysis. The aim of the article is to initiate the use of CSH and to encourage people to help to develop this and other emancipatory approaches.

---

**KEY WORDS:** critical systems heuristics; total systems intervention; planning.

## **1. INTRODUCTION**

Critical systems heuristics (CSH; Ulrich, 1983) is an emancipatory approach to problem solving. It is the only emancipatory systems approach of which we are aware. It is designed to be used in coercive contexts. It systematically exposes the presuppositions of planners to reveal whose interests are being served. Uncovering the fundamental purpose(s) of plans empowers involved and affected people who are normally subjected to the will of dominant interests. The systemic nature of CSH lies in the assumptions it makes about social reality. It assumes that each plan can be defined by the boundary of its rationality. Rationality to one planner is irrationality to another. The systemic quest is to uncover and challenge the bounded rationality of plans by comparing them to other bounded rationalities.

CSH is a somewhat new approach. The sophisticated theory on which it is based has been comprehensively constructed. It has a sound logic but as yet no accompanying, fully worked out methodology. There is scant record of its use. Werner Ulrich, the originator, provides a few underdeveloped examples

---

<sup>1</sup>Department of Management Systems and Sciences, University of Hull, Hull, HU6 7RX, UK.

(see Ulrich, 1983). There is much work yet to be done. In this article we reconstruct the philosophy and principles of CSH in what is, hopefully, an easy-to-understand version and provide an application. Room is left in the application for the reader to extend our analysis and therefore join our authorship. We propose some methodological ideas. A critique of the theory and practice is given. By undertaking this study we aim to encourage the use of CSH. We want to make it more accessible to practitioners. We also want to encourage people to help to develop this and other emancipatory approaches.<sup>2</sup>

## 2. PHILOSOPHY OF CSH

Ulrich uses all three terms—"critical," "systems," and "heuristic"—in the sense given to them by Kant. To be critical one must reflect upon the presuppositions that enter into both the search for knowledge and rational action. A *critical* approach to systems design means planners making transparent to themselves and others the normative content of designs. All designs and proposed designs must be submitted to critical inspection and not presented scientifically as the only "objective" possibility. Ulrich takes the *systems* idea in Kant to refer to the totality of relevant conditions upon which theoretical or practical judgments depend. These include metaphysical, ethical, political, and ideological aspects. In attempting to grasp the "whole system," we are inevitably highly selective in the presuppositions we make. Ulrich follows Churchman (1979; "every worldview is terribly restricted") in seeing Kant's systems idea as an admonition to reflect critically on the inevitable lack of comprehensiveness and partiality of all systems designs. It is by reference to the whole systems concepts entering into these partial presuppositions that critique becomes possible. Finally, *heuristics* refers to a process of uncovering "objectivist" deceptions and of helping planners and concerned participants to "unfold" messy issues through critical self-reflection. It also signals that Ulrich is not going to attempt to ground critical reflection theoretically. Instead he provides a method by which presuppositions and their inevitable partiality can be kept constantly under review. These arguments are developed in a debate with the ideas on social systems design present in or inferred from the writings of Popper, Habermas, and Kant. This is covered in our book on total systems intervention (TSI; Flood and Jackson, 1991). Now let us move on to the principles of CSH.

<sup>2</sup>All systems approaches to problem solving that are mentioned in this article are comprehensively dealt with in *Creative Problem Solving: Total Systems Intervention* (TSI; Flood and Jackson, 1991). We therefore have no need to clutter this article with references. In the space available we are unable to provide the reader with a reasoned account about when CSH, or any other approach, is most effectively employed. TSI aims to provide this.

### 3. PRINCIPLES OF CSH

The principles that guide the practice of CSH might be taken to be four in number. There is the concept of “purposefulness,” an additional “dimension” necessary to map social reality. And there are three “quasi-transcendental” ideas designed to be used as critical standards—the systems idea, the moral idea, and the guarantor idea.

Kant concluded that space and time were necessary mapping dimensions for the object domain of Newtonian natural science. Ulrich reasons that, in considering social reality and seeking its improvement, planners inevitably come up against human “intentionality” (self-consciousness, self-reflectiveness, and self-determination), as well as the dimensions of space and time. Plans have a “meaning” to concerned actors and “matter” to them. A “pragmatic” mapping dimension that respects human intentionality and human purposefulness is therefore necessary in dealing with social reality. This somewhat abstruse idea lies behind Ulrich’s advocacy of a “purposeful systems paradigm” and his insistence that social systems be adequately designed to become purposeful systems—otherwise they are likely to serve people and purposes other than those intended. By specifying what is meant by purposeful systems, Ulrich can reveal shortcomings in mechanistic and organismic designs. Very briefly, in a purposeful system, the ability to work out the purpose must spread throughout the system; the system should produce knowledge relevant to purposes and encourage debate about purposes; and all plans or proposals for design should be critically assessed for their normative content. CSH is about the design and assessment of purposeful systems.

We now turn to the three quasi-transcendental ideas. Kant employed the notions of the “World,” “Man,” and “God” to reveal to us the necessary conditional character of our understanding of the totality. These notions are adjusted by Ulrich using three questions formulated by Kant, to produce the “systems,” the “moral,” and the “guarantor” ideas. The notions are applicable to social reality and capable of acting as critical standards against which the limitations of social system designs can be compared.

In considering the World (its existence and limits), Kant was pointing to the question, “What can I know?” The systems idea, as we have already met it, captures Kant’s intent with respect to social reality. We must reflect upon the inevitable lack of comprehensiveness in our attempts to map social reality and to produce social systems designs. The systems idea acts as a standard that forces us to consider this matter.

In considering Man (his immortal soul and freedom of the will), Kant was pointing to the question, “What might I do?” Transferring the intent to social reality gives birth to the moral idea. The planner aims to design better social systems for all but should constantly ask what values are built into the designs

and consider the moral imperfection of the designs. The moral idea asks the social systems designer continually to seek to improve the human condition through his/her designs but to be always aware, as well, of the moral implications of those designs. Moral limitations and shortcomings are best revealed by having regard to the “affected but not involved.”

In considering God, Kant was pointing to the question, “What may I hope?” In the social realm this translates into the guarantor idea. There can be no absolute guarantee that planning will lead to improvement, but the planner should seek to incorporate as many sources of imperfect guarantee as possible. A social systems designer should seek opinions from many experts and from different stakeholder groups. Proper procedures should be put in place for consultation, and agreement should be sought between those involved in the plan and those affected. After all this, however, the planner should continue to reflect on the lack of guarantee for his/her designs.

The systems, the moral, and the guarantor ideas should be used by planners as critical standards against which they can evaluate the limitations and partiality of their designs. They also can be used by those affected to show the plans’ lack of comprehensiveness (systems idea), their ethical inadequacy (moral idea), and their undemocratic nature (guarantor idea).

## **4. CSH METHODOLOGY**

### **4.1. Introduction**

The methodology of CSH falls into two parts. The first part is concerned to help planners to make transparent to themselves and others the presuppositions that inevitably enter social system designs. To help with this, 12 “critically heuristic categories” are established that can be used to interrogate systems designs and potential designs. The second part offers a practical tool that ordinary citizens can use to engage planners in rational discourse about the partiality of their plans. This tool, or method of arguing, is called the “polemical employment of boundary judgments.” It is necessary because the planners (the involved) not only must be self-reflective about their designs, but also must subject their designs to debate with the “witnesses”—in practice, representatives of those affected but not involved. Only if agreement is then reached between involved and affected can the plans be passed as “rational.”

### **4.2. The Twelve Critically Heuristic Categories**

To reveal the “whole system” judgments, or presuppositions, entering social system designs, Ulrich suggests using the concept of “boundary judgments.” When planners apply systems design methods to the “real world,”

they inevitably make assumptions about what is inside the system of concern and what belongs to its environment. These boundary judgments reflect the designer's whole systems judgments' about what is relevant to the design task. They also represent "justification break-offs," since they reveal the scope of responsibility accepted by the designers in justifying their designs to the affected. Thus boundary judgments provide an access point to the normative implications of systems designs. The task is to find a means of interrogating systems designs to reveal the boundary judgments being made and a means of postulating alternative boundary judgments: of asking what the boundaries *should be*.

To facilitate this task, Ulrich has produced a checklist of 12 "boundary questions." These follow from 12 critically heuristic "categories" (cf. Kant). They are established around the distinction between those "involved" in any planning decision (client, decision-taker, designer) and those "affected" but not involved (witnesses).

The questions relating to the client concern the "sources of motivation" flowing into the design. They are about its "value basis." The questions relating to the decision-taker examine "sources of control." They are about the design's "basis of power." The questions relating to the designer concern "sources of expertise." They ask for the "basis of guarantee." And the questions relating to the witnesses reflect on the "sources of legitimation." The client, decision-taker, designer, and witnesses distinction yields, therefore, four groups of questions.

There are 3 questions asked of each of these 4 groups—giving the complete set of 12 boundary questions. The first question is about the "social roles" of the involved or the affected; the second refers to "role-specific concerns"; and the third, to "key problems" surrounding the determination of boundary judgments with respect to that group. The exact questions are given in the case study below.

The power of the 12 questions to reveal the normative content of systems designs is best seen if they are put in an "is" mode and an "ought" mode, and the answers contrasted. A concise way of tabulating this is also given in the case study.

The 12 questions allow planners and concerned citizens to get at the normative premises that inevitably flow into any actual systems design. In the second part of CSH, Ulrich sets out to provide the affected with a tool that can cause the involved to reflect on a design's normative content—even if they should appear less than willing to do so.

### 4.3. The Polemical Employment of Boundary Judgments

One main obstacle seems to lie in the way of the affected challenging the systems designs of planners. It is their lack of expertise and their apparent lack of "rationality." As Ulrich has shown, this is not so difficult. All designs are

based on partial presuppositions, on boundary judgments incorporating justification break-offs. These are, of course, beyond the reach of expertise to justify. Anyone who understands the concept of boundary judgments knows that planners who justify their proposals based on expertise or “objective necessities” are employing boundary judgments, whether cynically or simply unreflectively. So if planners can be made to discuss basic boundary judgments, they are put in a position where they are no better off with their knowledge and expertise than ordinary affected citizens. It becomes a matter of trading value judgments about what premises should influence plans and what consequences are desirable (or otherwise).

To put recalcitrant planners into a position where they have to admit their boundary judgments, Ulrich advocates the polemical employment of boundary judgments. This idea stems from Kant’s discussion of the “polemical employment of reason.” For Kant an argument is polemical if it is used for solely critical intent against a dogmatically asserted validity claim. Affected citizens can employ boundary judgments against planners in this sort of way. They can assert alternative boundary judgments against the planners in the full knowledge that these reflect only personal value judgments. This is good enough to shift the burden of proof onto the planners and to leave them floundering to prove the superiority of their boundary judgments. Acting in this way, the affected can show three essential points: (a) that proposals of experts are governed by boundary judgments; (b) that the knowledge and expertise of experts is insufficient to justify their boundary judgments or to falsify those of critics; and (c) that experts who still seek to justify their recommendations by “knowledge” and expertise are employing boundary judgments dogmatically or cynically and, by that, disqualify themselves.

The polemical employment of boundary judgments therefore secures to both sides an equal position for reasonable dialogue. Now let us turn our attention to CSH in action.

## **5. CSH IN ACTION: THE EXAMPLE OF POLICE STRATEGY TOWARD THE CARRYING OF OFFENSIVE WEAPONS**

### **5.1. Introduction**

The following example documents the application of CSH to a major study area in the Metropolitan Police Force in London. Originally soft systems methodology (SSM) was applied but was found to struggle in the face of the kind of context met in this instance. One reason is that SSM has been almost exclusively designed to work in organizations such as companies, firms, and the like. Macrosocial difficulties and the problems to which they give rise hardly influ-

enced the main evolutionary phase of soft systems methodology. Further, the nature of the issues being confronted demanded an approach that could penetrate the contradictory positions of those involved and affected. It was simply no good, in this multiagency situation, to expect the constraint "cultural feasibility" found at stage 6 of SSM to work positively. The actors did not form a loose coalition with basic interests in common that could be appealed to, as possible social systems designs were negotiated, with some expectation of compromise. Without these conditions the principles of SSM break down. We discovered all this during the process of applying soft systems ideas to the difficulties encountered. The following account is a reworking of the original soft systems study carried out with Chief Superintendent T. Brydges. We explore how CSH might have better exposed and dealt with the contradictory and at least partially coercive nature of the issues.

## 5.2. Background

The primary center of the study was Lambeth Borough in London. Essentially, 12 actors, or agencies, were recognized as operating within the problem-context: the Home Office, the police (incorporating Community Liaison Officer's and Operational Officer's viewpoints), trade organizations, shops selling offensive weapons, the media, the Crown Prosecution Service, The Lambeth Consultative Group, the WHY group, carriers and assailants, youths, schools, and the magistracy. The following is a brief appraisal of the 12 viewpoints.

The Home Office represents the administrative side of law and order (the police representing the operational side). The role of the Home Office, however, extends beyond the authority of the police force, being responsible for the rights of individuals. This often leads to tension between the role of the police and the rights of the people. Two examples where this tension shines through are the 1953 Prevention of Crime Act and the 1984 Police and Criminal Evidence Act (PACE), which were deemed, especially by the police, as inadequate for tackling crime. One gray area that remains is the definition of "reasonable suspicion." An important last point is that the Home Office does not see crime as a manifestation of social factors. Law can only be used as a deterrent and cannot provide an impetus for beneficial social change.

The Chief Superintendent of Kennington, in Lambeth Borough, was considered to be a key person from the policing angle. Kennington and the Metropolitan environment is reputed to have the highest incidence of crime in London. Statistics suggest that Lambeth suffers seriously from persons carrying knives. Police in the area, seeking to curb the problem, look toward tightening existing legislation, but since 1984, PACE has constrained the police by equating reasonable suspicion needed to stop and search with that needed to arrest. This obviously makes things difficult for police who are eager to get on top of

the situation and erase weapon-related offences. Directives from the Chief Superintendent of Kennington sought to encourage policemen to spot possible carriers of knives. He issued a statement that effectively gave permission to policemen to confiscate offensive weapons without the need to arrest or charge.

The Association of Chief Police Officers (ACPO) have called for three changes in legislation in order to combat crimes associated with offensive weapons: first, a lowering of the standard proof required for reasonable suspicion; second, the right to trial resting with the prosecution; and third, an updating of the offensive weapons act to include survivalist type weapons. ACPO have expressed the opinion that the courts are too lenient, readily accepting that accused offenders were defending themselves.

The Police Community Liaison Officers (Superintendents and Chief Inspectors involved with consultative groups) argue that education is the key to a long-term solution, supported by a hard-line judiciary. An education that instills traditional values was advocated, aiming to eliminate the criminal classes. Methods suggested included the provision of information packs which detail laws on knife carrying.

Operational Officers (Chief Inspectors, Inspectors, Sergeants, Constables) consider that there are three distinct reasons for the apparent increase in knife use: availability and low cost, ease of concealment, and an ineffective law. When asked to describe the knife offender, the officers pointed to the following main features. Such criminals are aged between 14 and 30, are male, have previous convictions, are unemployed, are poorly housed, and are poorly educated. Another key factor identified was race. All in all, there are a number of acute social factors that need to be addressed if the root of the problem is to be tackled. Consequently, and following youth consultation, it was decided that police must interact more closely with the community, gaining access to children from an early age. The aim would be to instill trust, dependence, and honesty.

The trade organizations have reacted in different ways to the South-East Co-operative Society's decision to remove from stores toys that glamorize violence. The British Toy Manufacturers Association claim that this is an over-reaction. Rainbow Toys, one representative of the manufacturers, thought that a blanket ban was wrong. Other reactions to the ban included a Chief Inspector who welcomed the removal and the Slough Council, also in London, who were delighted. The issue that remains contentious concerns the extent to which toy weapons mould aggressive attitudes in young adults. Shops selling real offensive weapons are accused by many of being more commercially oriented than socially responsible. There are many documented records of weapons being sold to persons under the age of 18. There are no laws, however, barring the sale of many offensive weapons. Voluntary guidelines have been drawn up by the Home Office but are generally considered to be noninfluential. Working out



effective legislation would be extremely difficult because there are certain vendors, such as iron mongers, who need to be able to sell knives.

The local media relates to the community, needing to reflect local views thus securing financial viability. The national media contrasts strongly with this, working around eight qualities of a "good story": immediacy, dramatization, personification, simplification, titillation, conventionalism, structured access, and novelty (crime stories are often used to sell nationals). Both types of media are influential on people's attitudes, but each one takes a different angle.

The Crown Prosecution Service (CPS) accept that the knife problem is prevalent but consider action taken to be too lenient. They have also complained that the police too often provide insufficient information to support accusations of "intent to use" offensive weapons. This disparity indicates a source of antagonism when crime problems are transported from the police to the CPS.

The Lambeth Consultative Group reckons that there are five relevant issues: seeking new legislation on knife carrying, reviewing police "stop and search" powers, banning sales of offensive weapons to juveniles, controlling magazine advertising, and waging an education campaign in consultation with local police.

The WHY group (Why helpless youngsters?) is a pressure group based in London whose main aim is to prevent young people from carrying offensive weapons. Three solutions have been put forward: first, a relaxation of reasonable suspicion criteria, thereby allowing the police to react to public demands for tougher action; second, promotion of education programs from the age of 8 or 9 years; and third, legislation to restrict sales of offensive weapons.

The views of carriers and assailants were sought, but this did pose some major difficulties. The "closest" contact available came via youth clubs, Afro-Caribbean clubs, and youth custody centers. From two clubs emerged the following justification: there is a fear of being attacked and there is a status associated with knife-carrying. Further, knives have been used to secure robberies from "rich people." Such wealth distinction is often used to justify acts of theft.

During the study, the Inner London Education Authority was approached and asked whether it was possible that discussions could be held in schools with the children. This request was rejected. The following points were revealed through less direct means. School children offered three main reasons that explained from their viewpoint why knives are frequently carried: it was fashionable, knives are available, and in our interpretation, it accorded with a certain mythology. Schools attempt to deal with this difficulty by day, confiscating weapons when found and punishing by suspending children and informing their parents. The School Curriculum Development Committee has been considering promoting relevant rules in the school, with the hope of engendering social responsibility.

The Magistracy consider themselves to be well balanced with respect to

community problems, since the majority of magistrates are lay magistrates who have a direct relationship with the community. In their deliberations it is assumed that the societal implications of prosecutions are more fully appreciated. Carrying is put in more of a sociological context.

A major new initiative has been instigated in several quarters of the Metropolitan Police Force. It has been labeled a multiagency approach. One area in which this planned social systems design has been discussed is that of the carrying of offensive weapons. Let us consider the basic ideas of the design before subjecting it, in the context of the above discussion, to a first run-through of the 12 critically heuristic questions.

A multiagency approach in the Lambeth context was described as being

designed to pursue an objective of identifying and locating key social agencies, with the aim of designing and implementing better community social crime prevention organization through decentralized community services, based on the principles of self-help and support neighborhood watch schemes, geographically aligned to Ward boundaries, to be administered by the local council, for the purpose of providing a local ("ground-floor") multiagency forum within a consultative and accountably controlled and monitored hierarchical structure in respect of local crime and community affairs.

The above account draws out the main issue areas concerning the problem of carrying offensive weapons. We now turn our attention to investigating how CSH can be applied in such a context.

### **5.3. Applying The Twelve Critically Heuristic Categories**

In this example, we concentrate on the first part of CSH, employing the 12 critically heuristic categories in the "is" mode to interrogate the proposed social system design of a multiagency approach to the carrying of offensive weapons. We do this as far as our knowledge of the situation allows. We then deal in less detail with the "ought" mode, considering alternative clients, purposes, etc., and thus generate alternative social system designs. Interested readers could fill out our "ought" analysis or choose another ought position from which to work. A thoroughgoing critique of the proposed strategy would then have been achieved.

At the outset we need to define S, the social system design. S relates to the Metropolitan Police Force, in particular the Lambeth Borough, as it upholds the laws relating to the carrying of offensive weapons. We are concerned with the design of police strategy, in particular through the introduction of the multiagency approach, toward the carrying of offensive weapons. Let us begin the inquiry.

### 5.3.1. *Who Is the Actual Client of S's Design?*

The "design" according to the stated purposes of the constitution of the Metropolitan Police Force, is to enforce the law of the land. The beneficiaries are presumed to be those living in the Metropolitan Society, including the offenders who may be reformed as defined by the legislature.

### 5.3.2. *What Is the Actual Purpose of S's Design?*

The declared intention is given in the response to question 5.3.1 above. We are now concerned with identifying the actual consequences of the operation of this intention. This is difficult, as all consequences precipitate to form further consequences. The consequences of S's design can be understood only through the responses of interested parties. We can extract some examples from the background to the situation presented above.

A main consequence of the old (premultiagency) system is to frustrate the Police Officers involved in trying to implement the laws determined by the legislature. The main reason appears to be difficulty in equating reasonable suspicion needed to stop and search with that needed to arrest. It is possible that the proposed multiagency approach may lead to some relief from the current situation. This may come either from the greater involvement of local citizens in reducing this kind of crime or directly through pressure being brought to bear on the authorities who are responsible for producing the laws.

In contrast, carriers and assailants consider the police strategy toward the carrying of offensive weapons, crudely speaking, as either infringing on their rights to self-protection in the case of some carriers or supporting a society with class distinction between "the haves and the have-nots." In Ulrich's terms, the purpose of S is either to suppress citizens' rights to self-defense or to support the structure of a two-class society. The multiagency approach may have no affect on this conception, or may even strengthen it, being seen as a way of consolidating the current situation.

### 5.3.3. *What, Judged by the Design's Consequences, Is Its Built-in Measure of Success?*

A traditional measure has been the progress or regress of crime measured according to standard statistics. These statistics have recently been accepted as highly inaccurate measures of crime and crime reduction. For example, they are based only on reported crime, leaving out what is generally agreed to be a substantial number of crimes which are not reported because of difficulties such as fear of reprisal. Consequently, a recent initiative has been to work out useful sets of performance indicators, which incorporate actors not usually explicitly considered, for example, social agencies and residents and their level of satisfaction. This is proving to be a significant challenge which, if successfully carried through, would obviously marry well with a multiagency initiative. Another indicator is the number of crime prevention initiatives that have been imple-

mented. Obviously, the built-in measure of success of S is by no means clear-cut.

*5.3.4. Who Is Actually the Decision-Taker, i.e., Who Can Actually Change the Measure of Success?*

We obviously have to put to one side the new initiatives for performance indicators, since these have not yet been adequately worked out. This leaves two measures of success; the volume of crime prevention schemes and progression or regression in the number of crimes.

There is no clear definition of crime prevention schemes, but this can be inferred: the schemes relate to various agents who have an underlying interest in the crime of concern and who formulate and implement policies or initiatives in order to prevent and reduce the crime. In this sense the decision-taker is the person/group who influences/dictates the focus and adoptability of the crime prevention scheme. In the majority of cases the decision-takers will be professionals, and most likely the Police Force.

Taking the second measure to be progression or regression in the kind of crime of concern leads us to a diversity of possible decision-takers. The most obvious is the Police Force, who can make judgments about the actual, rather than reported, crimes and who decide upon what constitutes a "clear-up."

The measure of success, however, can be changed by way of defining and redefining what actually is a crime related to offensive weapons. Whoever is able to amend existing, or create new, laws is a decision-taker. Ultimately, in the United Kingdom, this is the Home Office.

One additional decision-taker can be identified: the media. All forms of media have a strong influence over how the public understands and measures the success of bodies such as the Police Force. Since this "measure" can become all important, the media must be identified as decision-takers.

*5.3.5. What Conditions of Successful Planning and Implementation of S Are Really Controlled by the Decision-Taker?*

The social system design, relating to police strategy toward the carrying of offensive weapons, incorporates the idea of a multiagency approach. Whoever administers and controls the meetings can have a strong influence over membership and hence the possible range of issues and time allocated to discuss them. Primary control at this level lies in the hands of those who administer the meetings. Ultimate control according to formal channels is, however, held by the Home Office.

*5.3.6. What Conditions Are Not Controlled by the Decision-Taker, i.e., What Represents Environment to Him?*

Significant difficulties are faced when attempting to deal with macrosocial issues. The nature of control over social difficulties is particularly sticky. Those such as unemployment, bad housing, unstable family life, and ineffective

schooling are examples. These kinds of social issue represent the environment to our decision-takers.

### *5.3.7. Who Is Actually Involved as Planner?*

The actors involved with the multiagency approach ideally will be offered an integral role in the consultation and decision-making process. Groups such as local agencies are planned to be involved, thus involving school groups, church groups, and local councillors and planners. However, actual planning of meetings is likely to lie with the Police Force.

### *5.3.8. Who Is Involved as "Expert," of What Kind Is His Expertise, and What Role Does He Actually Play?*

Many of the actors are considered to be experts in their particular field or vocation, each having a valid contribution to make within the debate. For example, a representative from the schools will be an expert in the running of schools and the kind of issues which are of concern to those responsible for developing the character and intellect of children.

### *5.3.9. Where Do the Involved See the Guarantee that Their Planning Will Be Successful?*

The guarantee has traditionally been only with a minority, but with a multiagency approach, those involved might see the guarantee in a form of local societal consensus.

### *5.3.10. Who Among the Involved Witnesses Represents the Concerns of the Affected? Who Is or May Be Affected Without Being Involved?*

Ideally, in a multiagency manner of organizing people around an issue, all of those affected will be involved, at least in so far as they are represented through a related agency. One of the main tasks of this kind of approach is to search for those who may be affected without having the kind of involvement that Ulrich would demand. For example, if we were rather to simply identify two types of witness, the attacked and the attacker, we might find that it is the latter who is quite likely to be omitted from discussions about how the carrying of offensive weapons can be appropriately dealt with. The multiagency approach is clearly supported by the kind of reasoning that is preferred in CSH.

### *5.3.11. Are the Affected Given an Opportunity to Emancipate Themselves from the Experts and to Take Their Fate into Their Own Hands?*

One group of affected at least, the carriers and assailants, is given little chance to emancipate themselves. All resources are mobilized to improve the statistics or proposed performance indicators. Carriers and assailants can be seen, in some sense, as merely a means used to achieve this state. There is a danger that the emphasis on statistics or other hard measures will undermine the validity of the multiagency approach. Those who are responsible for work-

ing out the measures, of whatever sort, can easily take up a position of control and dominance.

*5.3.12. What Worldview Is Actually Underlying the Design of S? Is it the Worldview of (Some of) the Involved or of (Some of) the Affected?*

In the preceding 11 responses we have made several points directed at highlighting potential taken-for-granted assumptions in the development of the multiagency approach with respect to the carrying of offensive weapons. These assumptions suggest that the worldview, despite the good intentions of the designers, may be subject to dominance. It is difficult to imagine that the bias toward the Police Force, in terms of those responsible for measures of performance and, to some extent, determining the membership and functioning of the discussion groups, will not be responsible in part for setting the underlying worldview, emphasis, and purpose of the design.

We have considered some of the details of the proposed multiagency approach, employing the 12 critically heuristic categories in the "is" mode. Ulrich's scheme has suggested that, although the approach is multiagency in intent, it may be in danger of falling short of this ideal in practice. This can be further demonstrated if the 12 critically heuristic categories are used in the "ought" mode to explore alternative boundary judgments. Due to space constraints we answer fully only the first question in the ought mode, drawing in a stakeholder largely excluded from the existing proposed design—the carrier/assailant. (See Table I for a summary of questions in the is mode.) Following this theme, Table II provides in note form the is-mode analysis with an ought-mode analysis and provides a first attempt to critique the is-mode analysis with the ought-mode analysis.

**5.4. Answering the First Critically Heuristic Question in the Ought Mode**

*5.4.1. Who Ought to Be the Client (Beneficiary) of the System S to be Designed or Improved?*

A very simple conception of the situation is the carrier or assailant, the attacked and those who are affected by the events bringing the above two together. In many cases the (potential) attacked are seen as the ones served by actions oriented to deal with the "problem." If we could change conception, however, and consider that the (potential) attacker is the client, then our attention might be turned toward alleviating the conditions which give rise to the attacks. For example, we might attempt to develop an interest in social responsibility or reducing class and race differences in society. It would seem that the real danger is in labeling carriers/assailants as objects, thus ascribing an inferior position to them in the analysis and making them "the problem" rather than one of the clients. It is reasonable to suppose that if we nominate the carrier/

**Table I.** The 12 Critically Heuristic Boundary Questions in the “Is” Mode

- 
1. Who *is* the actual *client* of S’s design, i.e., who belongs to the group of those whose purposes (interests and values) are served, in distinction to those who do not benefit but may have to bear the cost or other disadvantages?
  2. What is the actual *purpose* of S’s design, as being measured not in terms of declared intentions of the involved but in terms of the actual consequences?
  3. What, judged by the design’s consequences, is its built-in *measure of success*?
  4. Who is actually the *decision-taker*, i.e., who can actually change the measure of success?
  5. What *conditions* of successful planning and implementation of S are really controlled by the decision-taker?
  6. What conditions are *not* controlled by the decision-taker, i.e., what represents “*environment*” to him?
  7. Who is actually involved as *planner*?
  8. Who is involved as “*expert*,” of what kind is his expertise, and what role does he actually play?
  9. Where do the involved see the *guarantee* that their planning will be successful? (e.g., In the theoretical competence of experts? In consensus among experts? In the validity of empirical data? In the relevance of mathematical models or computer simulations? In political support on the part of interest groups? In the experience and intuition of the involved? etc.) Can these assumed guarantors secure the design’s success, or are they false guarantors?
  10. Who among the involved *witnesses* represents the concerns of the affected? Who is or may be affected without being involved?
  11. Are the affected given an opportunity to *emancipate* themselves from the experts and to take their fate into their own hands, or do the experts determine what is right for them, what quality of life means to them, etc.? That is, are the affected used merely as means for the purposes of others, or are they treated as “ends in themselves” (Kant), as belonging to the client?
  12. What *worldview* is actually underlying the design of S? Is it the worldview of (some of) the involved or of (some of) the affected?
- 

assailant as a client, then we may find ourselves attacking the primary difficulties rather than nursing the symptoms.

A study then carries on in this way. Another angle on the situation is explored with alternative witnesses. Another table is completed and then another witness is dealt with. The result is a “stack of tables” whose critical component *individually* attacks the bounded rationality of the plan and *together* show comprehensively whose interests are being served.

We have now considered the philosophy, principles, methodology, and an application of CSH. It remains for us to offer a critique.

## 6. CRITIQUE OF CSH

We offer a critique of CSH in terms of theory, methodology, ideology, and utility. The critical comments made do not at all detract from Ulrich’s achievement. Rather they point to the sort of significant debate his work makes

TABLE II. Comparing "Is"-Mode to "Ought"-Mode Responses and Summarizing a Critique Between the Two

	Social role	Role-specific concerns	Key problems surrounding the determination of the boundary judgments with respect to that group
Client (value basis) "Is"	1. Metro. society Law enforcement Reform offenders	2. Frustrated police force Limited police power Assailants Suppress citizens right to self-defense	3. STD statistics Unreported crimes Highly inaccurate reports
"Ought"	Attacker	Emancipate assailant	Uncertain
Critique	Attacker surprisingly is rarely considered.	Switches the purpose and helps all.	Measurement is very difficult and needs careful rethinking.
Decision-taker (basis of power) "Is"	4. Metro Police Force/Mass Media Home Office Local politicians Concerned citizens	5. Home Office via administrators Influential contacts Range of issues agenda Time & allocation	6. Social issues Unemployment Bad housing Unstable family life Ineffective schooling
"Ought"	Attacker & above	Select committee	As above
Critique	Attacker becomes part of decision-making process.	Must attempt to run meetings in equitable way.	These conditions are fundamental in causing offensive weapons crimes.



Designer (basis of guarantee)			
“Is”	7. Multiagencies Social organizations Religious organizations Educational institutions	8. Experts from multi-agencies Recognized expertise in respective fields	9. Local societal consensus
“Ought”	All “stakeholders” including attacker	Diverse expertise arbitration & mediation skills	As above
Critique	“Even” the attacker has a stake in determining the future.	The attacker is an expert in the first-hand experience of 6.	Open and free discussion.
Witness (sources of legitimization)			
“Is”	10. Attacked	11. No opportunity for emancipation for carriers and assailants.	12. Police force
“Ought”	Any concerned citizen without representation	Involvement of attacker should help	Emancipate the attacker and the problem will be reduced
Critique	Attacker must be represented.	Still a great danger of experts dominating.	Achieving this switch will be extremely difficult.

possible. This work has helped considerably to raise the standard of dialogue in the systems movement and focus that debate on the most fundamental issues. A massive debt is owed to Ulrich for his painstaking analysis on the foundations of the systems approach and for his own contribution—an emancipatory systems perspective. We hope that the following critique stimulates responses and further criticism and, in this way, contributes to knowledge in the emancipatory sciences.

### 6.1. Theory

(a) CSH can be regarded as corresponding to simple-coercive problem-contexts but not complex-coercive (Flood and Jackson, 1991). Coercion, which is, in the realist sense, embedded structurally in organizations and society (giving rise to the more subtle and complex exercise of power), cannot be addressed using Ulrich's approach. Critical systems heuristics is critical in terms of the idealism of Kant, Hegel, and Churchman but not in terms of the historical materialism of Marx and the Frankfurt School of sociologists. Ulrich's work allows us to reflect upon the ideas that enter into any social systems design, but it does not help us to reflect upon the material conditions that give rise to those ideas and which lead to certain ideas holding sway. Obviously an analysis conducted according to Ulrich's recommendations will help point to such material conditions. What it cannot do is provide an examination or explanation of the nature and development of those conditions. Material conditions that lead to particular ideas prevailing and to particular designs winning acceptance have to be introduced by Ulrich as "common-sense" explanations of what is occurring (e.g., Ulrich, 1983).

(b) This same neglect of the structural aspects and development of social systems means that Ulrich's recommendations are ultimately somewhat utopian. The question remains, "Why should the involved bother to take account of the views and interests of those who are affected but not involved?" The question of which class, group, or agency has the power, the will, and the interest to bring about the rational society has bothered theorists throughout the twentieth century. No consensus has been reached, but at least it has been treated as an important question. Ulrich rather neglects this type of issue.

### 6.2. Methodology

Although the 12 critically heuristic categories have been found penetrating when employed in a deep inquiry into finding out about social systems design, the lack of methodological guidelines for action and intervention underlines the methodological immaturity of the approach. As we saw in the example of police strategy toward the carrying of offensive weapons, it is perfectly possible to

employ the 12 questions in the “is” and “ought” modes to reveal the social system design and all that implies. What is not evident is how to integrate these findings in intervention. We see in CSH an approach which is only just coming to the fore and has not matured in the way, for example, that soft systems methodology has by way of intense use for about 20 years. This immaturity does not invalidate the basic methodological ideas; rather it poses an interesting challenge for anyone who cares to tackle issues at the leading edge of system thinking.

### 6.3. Ideology

In his book *Critical Heuristics of Social Systems Design*, Ulrich (1983) rails against the limitations of the machine and organismic analogies so frequently employed in systems thinking. It is the influence of the culture and coalition metaphors and especially, perhaps, of the ideas that organizations can be “prisons” or coercive systems (when planners do not submit their designs to rational argumentation) that is most easily traced in his work. It is not surprising, of course, that the metaphors Ulrich uses to address the “real world” are those most relevant to his purposeful systems paradigm. The effect of all this, however, is that Ulrich’s criticisms of systems science and cybernetics seem somewhat overplayed and the important role that instrumental reason can offer when handled critically in planning tends, therefore, to get neglected. This is unfortunate since rational social action will depend on what it is possible to do and the choice of efficient means—matters of instrumental reason—as well as upon what we ought to do—a matter of practical reason. We would not want to labor this point—experts do have a role in Ulrich’s systems approach. It may simply be a matter of emphasis. Nevertheless, the impression is conveyed that systems science approaches are more dangerous than useful when applied to questions of social systems design. A better view perhaps (developed by Flood and Jackson, 1991) is that systems science is alright in its place, and it does have a place in social systems design.

### 6.4. Utility

CSH does not seek to assist with issues of system organization and structure. Its real contribution is in penetrating coercive contexts. If this seems somewhat limited, it should be remembered that very many social systems can insightfully be viewed as providing coercive contexts. Further, there is no doubt that debate in noncoercive settings can often benefit from the kind of clarification Ulrich’s approach provides. It might also be mentioned that Ulrich himself (1988) has more recently suggested a “three-level” concept of rational systems practice which embraces the concerns of systems science, organizational cyber-

netics, soft systems approaches, and critically normative systems thinking. This can be seen to parallel the TSI approach (Flood and Jackson, 1991) in line with the complementaristic integration of systems thinking advanced in that book.

We have completed the analysis of CSH and now tie up the paper.

## 7. CONCLUSION

In this article we have explored critical systems heuristics (CSH). It is an emancipatory approach to systems-based problem solving. The philosophy, the principles, the methodology, an application, and a critique have been presented. CSH has been put across in a hopefully "easy-to-understand" form. It is clear that CSH aims to uncover whose interests are being served by purposeful systems designs. It assumes that social and organizational reality is political and coercive and concentrates on dealing with that aspect. It fills a gap left by hard and soft systems approaches. But there is still much work to be done. We hope that we have been able to convince the reader of the value of CSH. We wish to encourage you to help to develop this and other emancipatory approaches.

## REFERENCES

- Churchman, C. W. (1969). *The Systems Approach*, 2nd ed., Dell, New York.
- Flood, R. L., and Jackson, M. C. (1991). *Creative Problem Solving: Total Systems Intervention*, Wiley, Chichester.
- Ulrich, W. (1983). *Critical Heuristics of Social Systems Design*, Berne, Haupt.
- Ulrich, W. (1988). Systems thinking, systems practice, and practical philosophy: A program of research. *Syst. Pract.* **1**, 137-163.