Source: Werner Ulrich: 'Critical Systems Heuristics', in: *The Informed Student Guide to Management Science*, ed. by H.G. Daellenbach and R.L. Flood, London: Thomson Learning, 2002, p. 72f.

Critical Systems Heuristics

Critical systems heuristics (CSH, Ulrich 1983) represents the first systematic attempt at providing both a philosophical foundation and a practical framework for *critical systems thinking*. The Greek verb 'heurisk-ein' means to find or to discover; heuristics is the art (or practice) of discovery. In management science and other applied disciplines, heuristic procedures serve to identify and explore relevant problem aspects, questions, or solution strategies, in distinction to deductive (algorithmic) procedures, which serve to solve problems that are logically and mathematically well defined. Professional practice cannot do without heuristics, as it usually starts from 'soft' (ill-defined, qualitative) issues such as what is the problem to be solved and what kind of change would represent an improvement.

A critical approach is required since there is no single right way to decide such issues; answers will depend on personal interests and views, value assumptions, and so on (see *Weltanschauung*). A critical approach does not yield any single right answers either; but it can support processes of reflection and debate about alternative assumptions. Sound professional practice is critical practice.

CSH aims to support critical professional practice through a critical employment of the systems idea. The methodological core idea is that all problem definitions, proposals for improvement, and evaluations of outcomes depend on prior judgments about the relevant whole system to be looked at. Improvement, for instance, is an eminently systemic concept, for unless it is defined with reference to the entire relevant system, *suboptimisation* will occur. CSH calls these underpinning judgments 'boundary judgments', as they define the *boundaries* of the reference system to which a proposition refers and for which it is valid.

Accordingly, the methodological core idea of CSH is to support systematic processes *of boundary critique*. To this end, CSH offers a framework of boundary concepts (Figure 1) that translates into a checklist of twelve critical boundary questions (Ulrich 1987, 1996, 2000). They can be used, first, to identify boundary judgments systematically; second, to analyse alternative reference systems for defining a problem or assessing a solution proposal; and third, to challenge in a compelling way any claims to knowledge, rationality or 'improvement' that rely on hidden boundary judgments or take them for granted. The third application leads to an emancipatory employment of *systems thinking;* it offers both those involved in and those affected by professional practice a new critical competence, regardless of their theoretical knowledge or special expertise with respect to the problem in question.

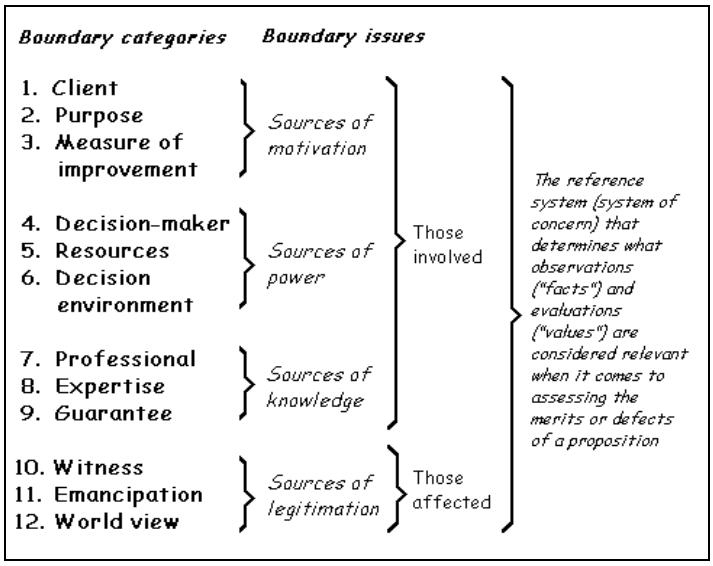

Figure 1: Boundary categories of critical systems heuristics
(Source: W. Ulrich, 1983, p. 258; 1996, p. 43; and 2000, p. 256)

In sum, CSH can be defined as a critical methodology for identifying and debating boundary judgments. Despite its emancipatory implications (the aspect for which it is best known), CSH should not be misunderstood and used as an emancipatory systems approach only; for its principle of systematic boundary critique is vital for sound professional practice in general, whatever importance may be attached to emancipatory issues. For the same reason, CSH does not aim to be a self-contained systems methodology but is better understood as an approach that should inform all critical professional practice, whatever specific methodology is used.

References

Ulrich, W (1983) *Critical Heuristics of Social Planning: A New Approach to Practical Philosophy,* Bern: Haupt. Reprint edition, Chichester: Wiley 1994.

Ulrich, W (1987) 'Critical heuristics of social systems design', *European Journal of Operational Research* 31(3), 276-283.

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

Ulrich, W (2000) 'Reflective practice in the civil society: the contribution of critically systemic thinking', *Reflective Practice* 1(2), 247-268.

Werner Ulrich

File name: <Ulrich_2002a // Ulrich (2002a) – Critical systems heuristics (prepublication version)>

Date completed: 16 August 2001

Author: Prof. Werner Ulrich, Sichelweg 41, CH-3098 Schliern, Switzerland, wulrich@gmx.ch