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Exploring critical systems thinking and its application to quality in higher education

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Abstract

The purpose of this paper is to provide a brief account of ongoing doctoral work that seeks to explore quality in higher education using a critical systems approach. The rationale and justification for the use of critical systems thinking in the particular context of education is presented, together with the core elements identified as necessary for establishing a critical systems approach. Implementation of the tasks, tools and methods associated with the (continuously evolving) critical approach are discussed in terms of their relevance in the study, and their relation to critical systems thinking. The paper concludes with some reflections about the use of critical systems thinking as a research approach.

Exploring quality in higher education

The approach outlined in this paper was developed to explore the purposes and functions of 'quality' in higher education using critical systems thinking to illuminate the problem context, and identify initiatives and strategies that could constitute authentic improvement in the problem setting.

The philosophy, approach, tools and methods associated with quality assurance, quality improvement and quality management have been widely discussed in the business literature (Ghobadian & Speller, 1994; Jacques, 1996; Reeves & Bednar, 1994). The outcomes of some of the more critical examinations of quality and total quality management in business contexts have reflected the need for a systemic view of quality (Spencer, 1994). Particular attention has been drawn to the existing limitations of quality approaches in terms of their dependency on the context (Ghobadian & Speller, 1994; Giroux & Landry, 1988; Juran & Gryna, 1988; McCabe & Wilkinson, 1997), and the need to incorporate the values and meanings of participants internal and external to the organization when making judgements about the successful (or otherwise) implementation of quality systems (Spencer, 1994; Zbaracki, 1999).

The transfer of quality management from business to education provided the impetus for a much broader review of the quality concepts, tools and methods by academics in multiple disciplines. Ironically, conclusions drawn from a variety of studies were strikingly similar to those seen in the management literature including: difficulties in defining key stakeholders (Giertz, 2001); selective implementation of tools and methods with no clear linkages to organisational context and values (Benka & Gleeson, 2001; Koch & Fisher, 1998; Storey, 1994) and the use of quality models as an explicit mechanism for control in the advance of political agendas (Barnett, 2003; Walsh, 1995). Threaded through the findings are core questions regarding the 'fit' between the nature and purposes of quality management and those of higher education itself.

Consequently, exploring quality in higher education requires an appreciation of quality (philosophy, tools, methods) informed and directed by an appreciation of higher education (e.g., purpose(s), structure, stakeholders). Such a study is vast to say the least, and demanding an approach that can take account of, and integrate, multiple perspectives within and across the higher education system.

Exploring systems thinking and higher education

The application of systems thinking to the problem context of higher education has received very limited attention (Ison, 1999), with systems ideas sometimes intersecting education rather than education literature drawing directly on systems ideas (Houston, 2007). Banathy & Jenlink (2004) provide one of the few seminal works in the area where they propose that education, as a human activity system, requires exploration of its character in terms of the interconnected and embedded sub-systems, and operation in an open environment with multiple exchanges occurring between elements as well as with the external world. A function/structure and process/behaviour model was suggested as one way to facilitate different system views, coupled with an exploration of the boundaries that

exist within the system as these can highlight purposeful sub-systems and system levels (Banathy & Jenlink, 2004).

Building a picture of the 'whole' that takes appropriate account of the interrelationships and interdependence of elements within and without education systems is one of the cornerstones of systemic change and organisational learning discussed by Carr-Chelman (1998). In her critical review of the literature, the role of 'facilitative change agent' to engage with the stakeholder community, and elicit integrated solutions that take account of power relations is identified as central to the development of effective strategies for improvement. However, her findings suggested that systems-based interventions applied in education did not promote sufficient participatory decision-making amongst all stakeholders, and a more critical approach to problem-solving in education settings was required (1998).

Using critical systems thinking to explore quality in higher education

The development of Critical Systems Thinking (CST) began in the late 1980s and was predicated upon a critical philosophy coupled with a pluralist approach to shift the focus from tools and methods applied to a problem context, to understanding the problem context so that the appropriate tools and methods could be applied (Daellenbach & McNickle, 2005). As the critical systems approach evolved, so too did agreement regarding its three core themes (Banathy & Jenlink, 2004; Brown & Packham, 1999; Flood, 1999; Jackson, 2000; Midgley, Munlo & Brown, 1998; Schecter, 1999):

1. Critical awareness: of the context, the participants, and the assumptions and values in operation;
2. A focus on improvement: broadly defined and incorporating issues of power to advance the best possible outcomes for all the participants; and
3. Pluralism: use of multiple methods and systems methodologies to illuminate the problem context, to advance critical awareness, and identify authentic improvement.

In operationalising the themes, Jackson (2000) conceived the framework of a 'meta-methodology'—Total Systems Intervention (TSI)—to support the use of CST for organisational learning and problem solving. The principles and operation of TSI have been described in the literature (Flood & Jackson 1991; Jackson 2003) and essentially involve three cyclical and iterative phases: creativity using organisational metaphors to highlight aims, issues and concerns; choice of the appropriate systems methodologies; and implementation to arrive at specific change proposals (Flood & Jackson, 1991).

In the light of published literature on quality in higher education, and the intersections with systems ideas it is possible to derive a number of working propositions about the nature of quality in the context:

1. It is systemic and complex, underpinned by local, national and international understandings, and transcending disciplinary, institutional, economic and political boundaries;
2. Multiple perspectives are required to advance understandings of quality in higher education;
3. There is a need to surface assumptions regarding the nature and purpose of higher education including the values and beliefs that operate at various levels of the system; and
4. The socio-political and socio-technical aspects of quality must be explored, especially in the context of the power relations that may privilege particular forms of knowledge above others.

Comparing the core themes of CST, with the set of working propositions regarding quality in higher education, it seems that a critical systems approach could provide the means to explore the improvement of quality in higher education.

Developing a critical systems approach

Armed with only an intuitive understanding of systems thinking, designing a study based on CST and having to navigate the sheer number of theories, methods and methodologies associated with TSI is a daunting prospect. Add to this the published literature on quality and higher education and the difficulty of establishing 'where to begin' is almost enough to persuade one not to! However, spurred on by the completion of a similar study by Houston (2007) which used a CST to explore quality in the particular context of an academic unit, and the advice of Flood (2000) to 'just begin', a critical systems approach slowly began to evolve.

Drawing on the work of Becher & Kogan (1980), important 'levels' within the higher education system were identified as individual academics, departments, the university, and the 'central authority' (broadly defined as the government or policy making structure charged with steering the higher education system). A university was then selected as the site from which to draw a purposive sample of twenty institutional-level participants (comprising academics, middle managers and senior managers), and three willing representatives of the 'central authority' were identified via correspondence.

The 'just begin' phase of the research involved the collection of participant perspectives using individual semi-structured interviews to explore questions such as: what is a university like?; how would you define quality in terms of what a university does?; what impact have quality tools and methods had?; and what do you think could be done to improve quality at a university? Care was taken to ensure the design of the questions was sufficiently open so that participants could express themselves relatively freely and present images, assumptions and values as they saw fit.

Information obtained during the interviews was then analysed at multiple levels using a grounded theory approach (Strauss & Corbin, 1998) to compare and contrast participants' perspectives. Firstly, a within-groups analysis was conducted to explore images of the 'university' and 'quality' in order to determine what was valued, what was required, and what was being done. At the second level, outcomes of the within-groups analysis were compared and contrasted between groups to identify similarities and differences in the values and actions associated with quality in the university.

Accepting that the research participants could only provide a partial representation of the aims, issues and concerns associated with quality in higher education, ongoing attention was paid to 'sweeping in' as much information as was practicable about the nature and purposes of higher education, and stakeholder perspectives of quality. Even though this approach was not ideal, it did provide for the inclusion of multiple perspectives within and across higher education systems while keeping the study manageable for the researcher. Literally hundreds of pages comprising literature summaries and interview transcripts were produced as a result of the 'sweep', and these provided a wealth of data to apply critical systems tools and methods.

Implementing a critical systems approach

The implementation of a critical systems approach to exploring quality in higher education was still 'in-progress' at the time this paper was written. Consequently, the approach outlined was also at various stages of completion, and evolving in line with the iterative and cyclical nature of TSI! However, 'confirmed' tools, methods and methodologies used to illuminate the problem context are summarised (Table 1) and discussed henceforth.

<u>Use of Metaphor</u>

The social, cultural, political, economic and contextual themes underpinning the literature regarding quality in higher education strongly align with the creative use of metaphor discussed by Jackson (2003). Building on the work of Morgan (2006) and Daellenbach & McNickle (2005), the Machine,

Organism, Brain, Culture, Political (including its Coercive and Domination forms), Psychic Prison, and Flux and Transformation metaphors were used to examine the selection of published works that comprised the literature base for the research. This included 41 publications addressing quality in business organisations, 171 publications on perspectives of higher education, and 140 publications regarding the implementation of quality assurance tools and methods in higher education.

Each publication was 'classified' according to the author's interpretation of the dominant and dependant metaphors associated with the content. The dominant and dependant metaphors for each literature stream were then summarised and used as a tool for creative thinking around the potential issues and concerns they evoked in regard to the problem context(s).

Table 1: Summary of the (evolving) approach to a critical systems study of quality in higher education

Task	**Tools / Processes**	**Relevant CST Themes & TSI Modes**
Establishing the means to understand 'the whole'	Interviews Critical literature review The professional experience brought to the context by researcher	Critical awareness, a focus on improvement, and pluralism each incorporating creativity, choice and implementation components
Developing an understanding of the 'whole'	Grounded theory analyses of the interview data within and across participant groups Metaphor analysis Use of systems windows	Critical awareness, a focus on improvement, and pluralism each incorporating creativity, choice and implementation components
Identifying new directions for the improvement of quality	Systematic Boundary Critique Participant feedback	Critical awareness, a focus on improvement, and pluralism each incorporating creativity, choice and implementation components
Being 'critical'	Self-reflection & the role of intuition	Critical awareness, a focus on improvement, and pluralism each incorporating creativity, choice and implementation components

Use of Systems Windows

Work by Flood (1996; 2000) on systems windows provided the means to explore the suggestion by Banathy & Jenlink (2004) to use a structure/function and process/behaviour model to explore education systems. According to Flood (1996; 1999; 2000), an understanding of the whole organisation can be advanced if it is 'viewed' through each of four systems 'windows': "systems of process (design of flows and controls); systems in structure (in terms of control and coordination of functions); systems of meanings (peoples view points on the meaningfulness to them of what is going on and choices of improvement strategies); and systems of knowledge-power (fairness in terms of entrenched patterns of behaviour where what is said to be valid knowledge and proper action, is decided by powerful groups) (1999; p.94-95).

Opening each system window on the current study involved a process similar to that described previously in the application of metaphors. Individual articles were summarised according to the systems windows they explicitly addressed, and the literature streams examined to explore which windows had been opened more frequently than others. The use of systems windows provided

another optic from which to view the literature, the participant responses, and the types of issues that might be associated with the implementation of quality in a higher education context.

Use of Boundary Critique

Systematic boundary critique is a central requirement of systemic intervention (Midgley, 2000; Ulrich 2002; 2003). The contributions of boundary critique to the core themes of critical systems thinking have been described by Ulrich (1994; 2001; 2002; 2003), Midgley (2000), Flood (1999) and Midgley & Ochoa-Arias (1999), and can be summarised as follows:

- Boundary critique contributes to critical awareness through the identification of boundary judgements that can expose the convergence or divergence of participant perspectives regarding who and what is valued in the particular context;
- Boundary critique contributes to definitions of improvement as the meaning of improvement in any problem context is dependent on participants' point of view; and
- Boundary critique contributes to pluralism in terms of providing an evaluation of the problem context that can inform methodological choice.

Applying boundary critique to the problem context of quality in higher education proceeded with the development of answers to Ulrich's 12 boundary questions (1987) firstly based on participant perceptions of 'the university' and secondly, on participant perspectives of 'quality in the university'. Contrasting the 'is' and 'ought' modes as discussed by Ulrich (1987) provided the foundation analysis of 'fit' between the intended and espoused purposes and values of the two systems, and the level of involvement of various stakeholders.

Self-reflection and the role of intuition

Ulrich (2001) wrote that "competence in research means pursuing a self-reflective, self-correcting and self-limiting approach to inquiry" (p. 7). In this study self-reflection is accepted as a explicit component that prompts iterative evaluation of the researcher, and the ways in which her interpretations and procedures contribute to an improvement-driven intervention. The enactment of self-reflection is ongoing and involves the researcher questioning herself about the values and assumptions she brings to the problem context, whether the process of observation, reflection and communication of findings can constitute an intervention, and whether this is actually a *real* critical systems study!

Critical and constructive answers to the questions can be developed with reference to Jackson's constitutive rules for critical systems practice (2000, p. 393), and Midgley & Ochoa-Arias' nine criteria used to assess a systemic intervention (1999, p. 17-22). In particular, the work of Midgley regarding intervention as encompassing "acts of observation, acts of reflection, or acts of communication" (1995, p. 58), is of particular relevance considering that the opportunities for direct intervention (at individual, departmental, institutional and government levels) are limited by the position and status of the researcher as a doctoral student.

Reference must also be made to the role of intuition (Midgley, 2000) and the significant part that it has played in determining how the tasks, tools and processes have been interpreted and applied. For example, the way in which the metaphor analysis was conceived and implemented was essentially an intuitive process that began from an awareness of the mechanistic nature of quality in business organisations, a desire to explore whether or not that nature had changed in the higher education context, and a limited number of interview transcripts from which to draw an informed conclusion.

Conclusion

Critical systems thinking is hard… but rewarding. Although guidance in its use is provided by key theorists such as Midgley, Flood, and Jackson, this author has come to the conclusion that the actual implementation of a critical approach requires a series of mind-shifts (the hard part): from viewing parts to viewing wholes; from the relative comfort of a linear and rational approach to a highly creative space where disorder is common; and from a focus on data to a focus on understanding.

The rewarding part is the emancipatory nature of critical systems thinking not only in terms of its espoused principles for improvement of real-world settings, but for the researcher. By removing restrictions to a particular theoretical framework and set of methods, the researcher can explore and reflect on his or her own competence in the research field and his or her ability to investigate it creatively.

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