Systemic Methodologies
for Future Higher Education in the UK

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This paper begins by using the CATWOE mnemonic from the Soft Systems methodology of Peter Checkland to identify the problem of Education in the UK today. This reveals an enlarged student base with attendant problems in entry standards, paradigm shifts in many subjects (e.g., mathematics and computing), different pedagogic methodologies, a rapidly changing employment environment and governmental interference in the whole process. Two major manifestations of this are modularisation which dictates a reductionist approach to knowledge acquisition and availability of more intelligent educational software.

Three major branches of systemic thinking are addressed as responses to these challenges:

Systems Dynamics is an ideal vehicle for providing an holistic alternative. Using causal loop models allows one to retain the complexity and mess that is inherent in modern problems whilst still identifying the major feedback loops. Analyses of these loops reveal not only the short term but more importantly long term behaviour. Using such methods allows the students to see the whole picture, the full power of their subject and thus to make sense of different modules they will be asked to study. The concept of archetypes is also a powerful tool which demonstrates fundamental patterns of behaviour and thus further integrates different spheres of knowledge.

The Soft Systems Methodology can also be used to provide an integrating strand to the educational process. In particular, the Rich Picture approach suggested by Checkland can be used as a first step towards an influence diagram and hence a causal model. The diagrammatic portrayal of the methodology is discussed and is found to be extremely useful as it unites many aspects including cultural and subjective viewpoints. The CATWOE tool also is a useful way of portraying the subject.

The Viable Systems Method of Stafford Beer is an attempt to ensure that the variety of the environment is matched by the system in question. By applying such methodology to the pedagogic system, the instructors can ensure that the variety of the teaching and the variety in the modules will provide a rich and useful educational experience.

The paper concludes with an appeal for these approaches to be considered by future educators. Too often, in the UK, such approaches are dismissed as fringe subjects and not seriously considered. The tradition is to cram students with hard facts and techniques. The products of such an approach make good workers but lack the vision, creativity and imagination that is needed for the entrepreneurs and innovators of the 21st century.