



## **Curricula, Chaos and Constructive Alignment**

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Following an excellent day of talks and discussion organised by Norman Jackson (Nov 4<sup>th</sup> 2002, London), I offer the following reflection on the themes of Curricula, Chaos and Constructive Alignment. Someone more familiar with the relevant educational research literature may want to dismiss my propositions - or to weave them into a coherent theory. My views are un-cited but are influenced by a body of literature, collectively known as the new institutional economics and including evolutionary economics and the economics of information.

1. Constructive alignment is, by definition, a coordinative activity that involves processing multi-dimensional data.
2. In all but the simplest alignment contexts, the ability to undertake the activity will be limited by human cognitive capacity.
3. Since student learning, even with homogeneous small groups, is a complex process shaped by the ability and accumulated knowledge of students and teachers; by interactions between students, students and teachers, students and teaching resources, students and external constraints, teaching resources and exogenous events etc; then it is highly unpredictable.
4. The knowledge required to align a learning process is highly subjective and local - local to teachers with experience in teaching a particular subject in a particular context.
5. At higher levels of curriculum management - alignment within a programme, department or HEI, the quantity of information necessary to align according to some kind of rational model is excessive, if not prohibitive.
6. Resource constraints, principally time, exacerbate the informational problems in the alignment task.
7. Perfect alignment is an unobtainable goal because most data needed to achieve it are unmeasurable - at least at any reasonable cost.
8. Constructive alignment is therefore by nature, limited alignment.
9. The question therefore arises as to how it may be optimised (since it cannot be maximised).
10. Optimisation takes account of realistic constraints - on cognitive ability resources.
11. It may mean maximising the number of measurable indicators of alignment subject to constraints on time, curriculum structure, number of assessments, style of assessment etc.
12. It may mean minimising the assessment burden subject to achieving certain threshold alignment objectives (students must be assessed on two principal ILOs for example).
13. At levels above the module, it will be impossible to collect sufficient information to align in a meaningful way.
14. The imposition of anything but the very simplest of prescriptive rules or procedures governing curriculum design is likely to add to the cognitive overload problem and set up perverse feedback loops that may work against the overall goals of alignment. Compliant responses are likely to overshadow creative application of superior local subject teacher knowledge and the additional resource burden of complying, reduces resources that could be directed at more efficient creative solutions.

15. Complex systems are not effectively ordered by complex rules, especially by prescriptive rules ('you should...').
16. Complex systems are best governed by simple rules (preferably proscriptive - 'you should not...'). This is because simple rules are more widely understood and adopted and therefore produce more consistency in the local behaviour that drives a complex system. The chaotic behaviour is more predictable, understandable and manageable as a result.
17. QA rules (from QAA or internal to HEIs) are typically complicated, full of detailed prescriptions, and impose heavy additional information burdens.
18. A challenge to constructive alignment theorists and practitioners is to design very simple rules capable of steering local decisions of individual teachers, course teams and programme designers.
19. The paper by Warren Houghton at the Nov 4<sup>th</sup> London conference contained what might be an example. At Exeter University Engineering, intended learning outcomes are divided into two kinds - threshold (A) and above threshold (B). Module leaders are required (a) to identify these two categories of ILOs and (b) design a compulsory question test for type A and a more open ended test for type B. As a simple rule set, this might read: 'avoid testing type B ILOs using the compulsory question test'; 'Type A and B tests should test functional knowledge not declarative knowledge'; 'the Type B test should test both A and B ILOs together'.
20. Ideas 1-19 tie in with Rob Cuthbert's entertaining and challenging paper on the university as an 'organised anarchy'. 'Organised anarchy' or course is an oxymoron. It is a nice term, however, to describe a highly decentralised organisation in which there is a large degree of autonomy not only in resource allocation but also in the goals and objectives to which ends, resources are deployed. The fact that university teachers do not generally operate as self-employed sole-traders shows that there are good economic reasons for universities to exist, notwithstanding this high degree of devolved decision making. Arguably, it is their extreme decentralisation of decision power that has made them the robust institutions that they are. Rob Cuthbert noted anecdotally in discussion that universities feature prominently in the list of organisations over 200 years old.
21. A starting point for managing constructive alignment at an institutional level must be to understand the importance of local decision making in delivering the core service of universities and to understand the superiority of the individual, local and tacit knowledge held by academics.
22. Interventions designed to steer the application of this knowledge must be applied with a realistic understanding of their limitations; must avoid complicated prescriptive frameworks; must allow for surprising outcomes and work creatively with such outcomes. They must be adaptive and aligned with the motivations and understanding of individual academics. Above all they must be simple and impose the minimum additional time and other resource costs.
23. Uppermost in the minds of policy makers should be the understanding that individual academics and groups of them will always seek solutions that minimise the costs of delivering good teaching (facilitating good learning). A mistake of QA policy has arguably been to assume that academics are not highly motivated to deliver a good quality service. It is the costs and impediments to such delivery that need addressing. Paradoxically, simple rules governing the efficient exchange of knowledge within the academy (including rules that help improve alignment) may have the effect of reducing the cost of fostering effective learning. After all, teaching that is widely unaligned is messy, unpopular, stressful and inefficient in many ways.
24. Simple rules for improving alignment or avoiding poorly aligned curricula can make teaching more effective and less stressful. To do this they need to reduce

more costs than they impose and need to respect the superior local knowledge of the teacher.