Conceptions and Visual Representations of the Curriculum

PART I Visual Representations and Conceptual Imagery in Curriculum Making

Norman Jackson and Malcolm Shaw

Purpose

The imaginative curriculum project aims to advance knowledge about curriculum making by consolidating and extending the existing knowledge base. It is also supporting some primary research into how academics design courses. The purpose of the project is to enhance curriculum design in UK HE by improving access to knowledge about curriculum making through a dedicated website, raising awareness that this information exists and seeking to embed its use in institutional processes which promote staff learning and provide opportunities for reviewing and designing the curriculum. Background information is provided at http://www.ltsn.ac.uk/genericcentre /projects/curriculum/.

The first part of this paper introduces the use and value of conceptual imagery and visual representations in curriculum making in the belief that developing and using such imagery is an important creative and necessary part of curriculum making. Part 2 provides some illustrative examples for some of the main approaches to curriculum making. Members of the Curriculum Network are invited to develop the ideas in the paper and contribute to building a database of images and visual representations. All contributions are welcomed. Please send your contributions to Norman.Jackson@ltsn.ac.uk or (gc.enquiries@ltsn.ac.uk after 01/09/2002) or M.Shaw@lmu.ac.uk.

Importance of conceptual imagery in curriculum making

Conceptual knowledge is the most fundamental construct of the mind (Margolis and Lawrence 1999).

Concepts are essential to advancing understanding and the development of practice. We create them as we understand and organise our environment and our place within it and we organise our environment and practice through developing our concepts. Because of this a concept is simultaneously the representation of a reality and the expression of an intention, a generalisation from experience and a hypothesis from which future experience might be predicted (Bolton 1977). Concepts permit us to make sense of the world and apply this sense making to new contexts and circumstances. This is the power of concepts in design processes.

Visual images are useful in representing, communicating and facilitating the processing of complex ideas and information such as might be contained in a concept. Shepard (1978) gave five reasons for why imagery and spatial visualisation were important in creative (e.g. design) processes.

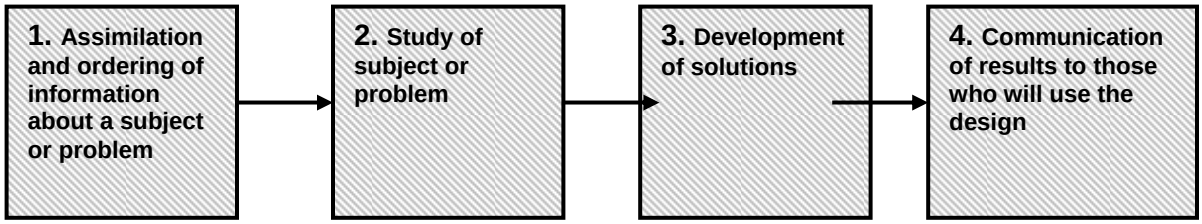
- Imagery and spatial visualisation offer rich alternatives to the constraints imposed by language
- Imagery can display relationships and dynamics that are difficult to perceive by other means
- The nature of images make them easy to manipulate through intuitive as well as more logical rational thinking
- Images are more likely to engage affective and motivational systems than language only based systems
- The search for structure, symmetry (and fault lines!) is aided by visualisation.

Curriculum making is a process of design which results in a product (a curriculum) to promote student learning. Design involves both precise and vague ideas. It typically involves both rational/ systematic and more intuitive thinking. The two ends of this continuum might be thought of as the science and art of curriculum making and different design processes emphasise these characteristics to varying degrees. Traditionally curriculum design in higher education has tended to lie closer to the artistic end of the continuum but increasingly HE teachers are expected to adopt a more scientific approach to all aspects of their practice. The use of conceptual knowledge and visual representations in curriculum making is a manifestation of a more scientific approach to being a teacher.

Conceptualising the design process

We can illustrate the value of conceptual imagery to convey meaning by considering the generic process of design. Figure 1 shows a simple conceptual image of the design process taken from the RIBA Architectural Practice and Management Handbook (1965).

Figure 1 simplistic concept map of the design process.

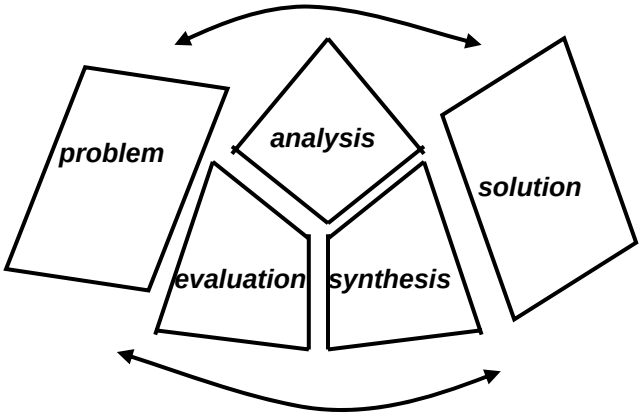


Logically the design process moves from left to right but in reality it is messier. For example, it might not be possible to know at the start of the process what information to gather. This does not become clear until there is engagement with the problem or subject. Also progression to solutions may not be smooth because of weaknesses in initial solutions. So while accepting that these are possible stages in a design process movement within the process is iterative and the concept map would need to be amended to reflect this.

Lawson (1997) provides a more sophisticated conceptual image of design (Figure 2) in which the process is characterised by negotiation between a problem (eg designing a new course or reviewing and redesigning an existing course) and a solution (e.g. the new course) involving the activities of analysis, synthesis and evaluation. However, the movements between the problem-activities-solution are complex, iterative and unpredictable. Movement can be more purposeful where a theory or hypothesis is used to guide the design process and this is where conceptual imagery can be a powerful professional aid. In curriculum making theories of learning may be

embodied in visual representations of the curriculum which capture educational philosophy, process and/or progression.

Figure 2 Lawson's (1997) conception of the design process as a negotiation between a problem and a solution involving analysis (ordering structuring and investigating and a 'problem'); synthesis (creating a response to the analysis in order to progress towards a solution) and evaluation (appraisal of possible solutions). *There is an interesting research question as to whether academics recognise these dimensions of design when they are reviewing and designing a course.*

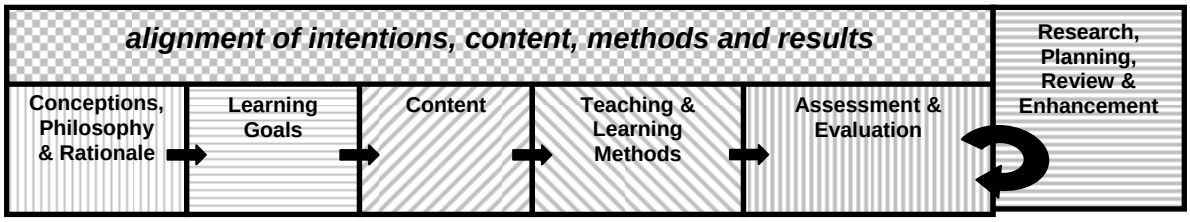


Role of negotiation in conceptual development

Knowledge evolves as a result of negotiation (Baillie in press). A personal representation may make sense to the person who constructs it but others may see the world differently and contest or reject the conceptualisation. But through negotiation a conceptual representation can be refined to the point were many people understand and can take ownership of the thinking and ideas that the creator intended to convey.

A good example of this was encountered in the first meeting of the curriculum network when the project team introduced a simple rational model of a curriculum (Figure 3) as a means of organising information about the curriculum on the website. The model has six elements: conceptions, philosophy and rationale; learning goals; content; teaching and learning methods and learning experiences; student assessment; and the processes of curriculum review, evaluation, research, redesign or transformation. The model was presented as a linear structure. This sparked considerable debate amongst participants and significant reservations were expressed. This was due mainly to the model's perceived inability to adequately reflect some of the pragmatic, iterative and collegiate approaches that influence the curriculum design making.

Figure 3



The basic building blocks were not however contested and the debate encouraged visual representations that reflected the interconnectivity and interactivity between the different domains (Figures 4 and 5). This is the way that conceptual imagery can be advanced through public negotiation.

Figure 4

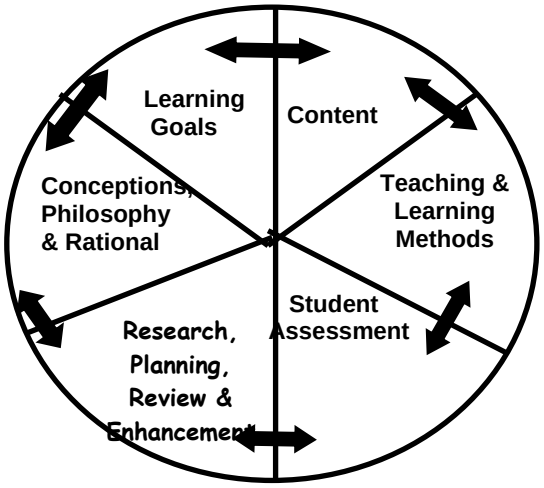
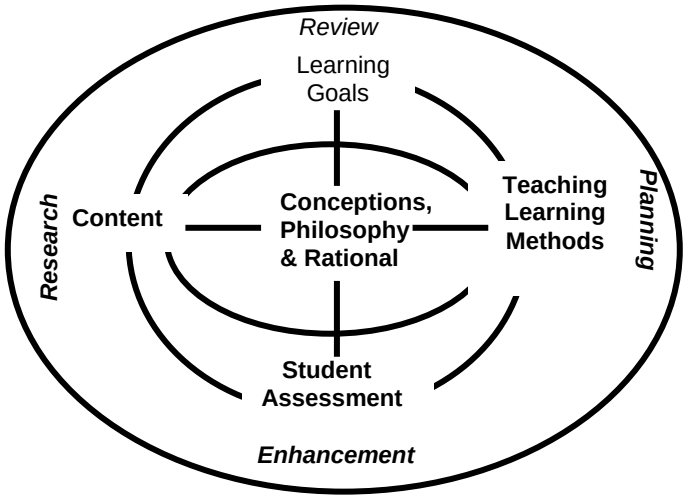


Figure 5



Institutional curriculum frameworks

The near universal adoption of a modular/unitised curriculum means that most institutions have developed a 'curriculum framework with rules which control the way programmes and courses are constructed. Institution's often create a visual representation to convey the regulatory dimensions of programme design to staff and students (see Jackson 1996 for examples). Framework representations rarely say anything about an institutional philosophy of learning. An exception to this rule is the conceptual representation for Leeds Metropolitan University (Shaw appendix 1).

Institutional curriculum representations are important because many academics regard them as providing all the processes they will need to design and develop a curriculum - so the design process is sometimes just conforming with the framework. But they are used dynamically - they compel the collection of essential material, they have implicit educational philosophy within them, they oblige consideration of essential questions, they force designers to trade elements

(fitting an existing module into a programme rather than designing a new one - economy versus precision). They are often discussed only in terms of the regulations, and much of the traffic is between the department and the academic registry to see what is possible, but there are real educational issues underlying these discussions. There is also a deep-seated committee structure in any institution which works to design and maintain these regulations, and it is here that you find the debates about the shape of the curriculum - but never in the explicit language which this paper is trying to develop. (Wisdom personal communication).

The real world of curriculum making

'I recently ran a session with new staff for the History Subject Centre and discussed with them how they might design a module. The replies were pretty uniform, and mostly focussing on content. They were to collect as many topics as possible around the theme of the module (and of course learn up what they might not know), then concentrate on the essential topics and discard the rest, and fit them into the number of weeks made available by the institution for each semester, then to check on the regulations, then (long afterwards) to sort out the exam questions. The dynamic in the curriculum here was the latest research, the up-to-date course. But I think we would get a different view from the staff who are just finishing their year on the postgraduate certificate..'(James Wisdom member of the curriculum network).

This is the real world of curriculum making for most academics, a world that is dominated by an implicit theory of learning in which staff engage with the knowledge base in the subject and learning processes are designed to share and help students apply this knowledge. Helping academics to appreciate that other theories of learning might be used in curriculum making is a major challenge and conceptual images and visual representations may provide the means to raise awareness of possibilities.

The primary concern and interest of most academics is the subject content of what they teach at the module or unit level but curriculum making also involves strategic thinking. Most course or student handbooks provide a visual representation of the course, programme or scheme. Typically (eg appendix 2) these show the overall structure (possible routes and pathways), content (module/unit building bocks); the rules which control programme assembly and progression and the award of credit (compulsory/core and optional components) and the points at which students may enter and interrupt their courses. The essential purpose of such images is to convey a sense of the journey that a student will make and the choices, opportunities and perhaps constraints to learning students will encounter. Such representations contain implicit theories of learning which are primarily about the progressive development of knowledge in the subject(s) being studied.

Curriculum maps which show how and where in the curriculum learning outcomes are taught, practised by students and assessed, provide further representations of progression in learning across the curriculum building blocks and levels of a courses. They enable teachers and students to develop a simplified but holistic view of a very complicated process and permit evaluations to be made of the sufficiency, continuity and connectivity of opportunity.

Programme Specifications (QAA 2000) now provide a new and consistent way of representing in a holistic way the structure and content of a programme, the main learning intentions and the teaching, learning and assessment methods used to promote, demonstrate and evaluate learning.

Consolidating and advancing conceptual understanding about the curriculum

Different types of imagery serve different purposes and communicate information to different audiences and there is a need and place for all the types of visual representations described above.
The conceptual imagery we are particularly interested in is more concerned with conveying essential understanding about the underlying educational philosophy and learning processes within the teaching community. Their purpose is essentially to provide intellectual tools to facilitate and stimulate thinking about a particular approach to curriculum design.

Curriculum making as an informed and mainly rational and progressive decision making process around a multitude of variables in each of the components identified in Figures 3-5: conceptions, philosophy and rationale; learning goals; content; teaching and learning methods; assessment and evaluation; research, planning, review and enhancement. Decisions in one part of this rational curriculum model have a significant effect on decisions in other elements. This necessitates an iterative approach to course design. The complexity of the resultant process, together with the strong value and belief systems (and prejudices!) that individuals bring to curriculum making, means that non-rational and intuitive thinking must also be an important part of the decision making process. It is precisely because of this enormous complexity that conceptual images are useful aids in curriculum making whether for analytical reasons (eg the evaluation of an existing course) or for planning reasons (the design of a new course against explicit theories of learning).[1]

A curriculum that has been designed in this way can utilise conceptual images to represent key structural and organisational features, design principles, connectivity and dynamics of processes and the assumptions and theories of learning that relate to such representations.

The imaginative curriculum project seeks to encourage the further development and use of conceptual imagery in curriculum design. Each contribution to this paper provides a concise visual and descriptive representation of the idea of curriculum from a particular standpoint. The paper does not set out to provide systematic coverage. Rather it seeks to provide illustrative examples and invites others to create and share their conceptions. In this way we can expand the range of conceptions that we might use to inspire/motivate/help HE teachers who are designing or redesigning courses and programmes to think about the curriculum in ways that they hadn't done before.

Acknowledgements
We would like to thank James Wisdom for constructive comments some of which are incorporated in the text. We are also indebted to Professor John Biggs (Australia), Dr Peter Knight (UK), Dr Margaret Savin-Baden (UK), Professor John Stephenson (UK) for sharing their conceptions and visual representations of the curriculum in part II of this paper.

[1] It was recognised in the first network meeting that curriculum emerges from the epistemologies of a subject(s) and education. This paper focuses on conceptions of curriculum that derive from the epistemology of education.

References

Baillie C (2002) Negotiating scientific knowledge. In W Lepenies. ed 'Negotiated Universals' by Campus Press (in press)
Bolton N (1977) Concept formation. Pergamon Press.
Jackson N J (1997) Managing flexible curricula in higher education: the architecture of modularity. Higher Education Quality Council London
Lawson B 1997 How designers think: the design process demystified. Architectural Press 3rd edition.
Margolis E and Larence S (eds) (1999) Concepts: core readings. MIT Press Cambridge Massachusetts.
QAA 2000 Guidelines for Programme Specification. Quality Assurance Agency
Shepard, R.N. (1978) Externalisation of mental images and the art of creation. In B.S. Randhowa and W. E. Coffnand (eds) Visual learning thinking and communication p133-189. New York Academic Press