UCD TEACHING AND LEARNING/ RESOURCES

Programme Design

Overview of curriculum models

Author: Geraldine O'Neill

Email: Geraldine.m.oneill@ucd.ie

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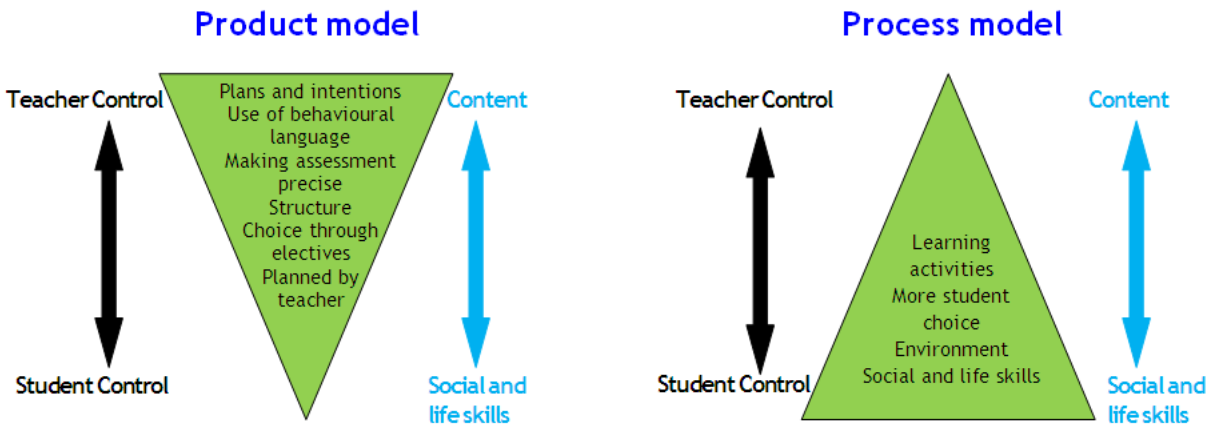
Overview of curriculum models

Ornstein and Hunkins (2009, p15) contend that curriculum development encompasses how a 'curriculum is planned, implemented and evaluated, as well as what people, processes and procedures are involved..'. Curriculum models help designers to systematically and transparently map out the rationale for the use of particular teaching, learning and assessment approaches. Ornstein and Hunkins (2009) suggest that although curriculum development models are technically useful, they often overlook the human aspect such as the personal attitudes, feelings, values involved in curriculum making. Therefore they are not a recipe and should not be a substitute for using your professional and personal judgement on what is a good approach to enhancing student learning.

A commonly described, maybe slight simplistic version of two polarised curriculum models are those referred to by many authors as the 'Product Model' and the 'Process Model'. Neary (2003a, p39) describes these as one which emphasises *'plans and intentions (*The Product Model) *and one which emphasises activities and effects'* (The Process Model) (See Table 1 below).

Table 1: The Product and Process Models of Curriculum Development.



The product model can be traced to the work of the writings of Tyler (1949) who greatly influenced curriculum development in America (O'Neill, 2010).

> *'Models that developed out of Tyler's work, such as Popham and Baker (1970), were criticised for their over emphasis on learning objectives and were viewed as employing very technical, means-to-end reasoning. The higher education context in Europe, which has been strongly influenced by the 1999 Bologna Declaration (European Commission, 2009), uses a model not dissimilar to Tyler's work'* (O'Neill, 2010, In Press).

The product model, however, has been valuable in developing and communicating transparent outcomes to the student population and has moved emphasis away from lists of content. Recent literature in this area suggests that in using this model, care should be taken not to be overly prescriptive when writing learning outcomes (Gosling, 2009;

Hussey & Smith, 2008; Maher, 2004; Hussey & Smith, 2003). For example, Hussey and Smith (2003, p367) maintain that:

> *'accepting that student motivation is an essential element in learning, we propose that those who teach should begin to reclaim learning outcomes and begin to frame them more broadly and flexibly, to allow for demonstrations and expressions of appreciation, enjoyment and even pleasure, in the full knowledge that such outcomes pose problems for assessment'*.

Knight (2001) expresses the advantages of a more Process model of curriculum planning in comparison to the Product. He notes it makes sense to plan curriculum in this intuitive way, reassured by the claim from complexity theory that what matters is getting the ingredients— the processes, messages and conditions— right and trusting that good outcomes will follow. This suggests that when working in a more product model of learning outcomes, it may be more valuable to first consider what it is you are really trying to achieve in your teaching/learning activities and to then write your programme and/or module learning outcomes.

In addition to the Process and Product model, there are a range of different more specific models that individually or collectively could suit your programme design. Some of the curriculum models have grown out of different educational contexts, such as 2nd level, Higher and Adult Education. However, many are transferable across the different areas. Some are described as 'models' and as they become more specific they may be referred to 'designs', i.e. subject-centred designs. Table 2 gives an overview of some of these models.

Table 2: An Overview of the Curriculum Models.

Table of 'Overview of Curriculum Development Model' (Centre for Teaching and Learning, G.O'Neill)

CURRICULUM DEVELOPMENT MODELS (SOMETIMES CALLED 'DESIGNS')					
HE Literature	**2nd Level Literature**	**2nd Level Literature**	**HE Literature**	**2nd Level Literature**	**HE/FE Literature**
Product[2]	Technical-Scientific[1]	Tyler: Four Basic Principles[1]	Performance or systems-based approach[3]		Constructive Alignment[6]
		Backward Design (Wiggins & McTighe,)[1]			Graduate Attributes/Competency Based (see also Fink[5])
			Traditional or Discipline Based Curriculum (Structure of knowledge/subject)[3]	Subject-Centred Designs[4]	Broad Fields[4]
					Discipline Based[4]
					Correlation Designs[4]
		Cognitive Thought Model (Lakoff & Nunez)[1]	Cognitive Approach[3]		Conceptual clusters Design
			Social-constructivist approach		
			Threshold Concepts[7]		Theme Based Curriculum
Process[2]	Non-Technical[1]	The Deliberation Model: Conversational approaches[1]	Experiential or personal relevance[3]	Learner-Centered Design[4]	Negotiated Curriculum
		Post positivism models[1]			Process-Based Curriculum
			Social critical approach[3]		Integrated Curriculum Design[5]
				Problem-Centered Designs[4]	
					Problem/Enquiry-Based Models

1= Ornstein & Hunkins (2004, p215); 2= Knight 2001; Neary, 2003; 3= Toohey (2000); 4= Ornstein & Hunkins (2009, p191) ; 5: Fink (2003). 6=Biggs (2004). 7= Land (2005)

Ornstein and Hunkins (2004) emphasises the importance of planning in curriculum design and they also note that although many curriculum models exist most can be classified as Technical or Non-Technical approaches. This break-down is not dissimilar to the Product/Process break-down of curriculum models. They maintain that these approaches should not be seen as dualistic or as either being positive or negative. In the Technical–Scientific approach, curriculum development is a useful blueprint for structuring the learning environment. The approach has been described as being logical, efficient and effective in delivering education. The Non-Technical, in contrast, has been described as subjective, personal, aesthetic and focuses on the learner (Ornstein & Hunkins, 2004, p207). The non-technical parallels some of the ideas in the Process model. (See Table 3).

Table 3: Comparison of Technical/Scientific and Non-Technical/Non-Scientific Curriculum Approaches.

Technical /Scientific	Non Technical/non scientific
• Curriculum as plan or blueprint • Definable process • Means/end analysis • Usually pre-ordained objectives • Emphasis on efficiency • Criticised as too linear • Tyler	• Questions assumptions of technical approach • Questions universality/objectivity • It stresses personal, subjective aesthetic nature of curriculum • Focus on learner • View learning as holistic • Students as a participants

In the Technical Scientific Approach, there are many different curriculum models. The original work, by Tyler (1949) can be seen as one of the models. His work equates with the Product model and is the foundation of the current Learning Outcomes Curriculum. A variation of the approach is the Backward Design Model, advocated by Wiggins & McTighe (2010), and is very popular with professional programmes as it links with the idea of Graduate Attributes and Competences. This approach is frequently used in curriculum design in the Irish context (O'Neill, 2010). Fink's (2003) popular curriculum model although non-technical and humanistic in its approach, also draws on the concept of 'looking-back' to design a programme.

Table 4: Two Examples of the Technical/Scientific Approach.

Example: Tylers (1949) Four Basic Principles	Backward Design Model (Wiggins & McTighe)
• Define the purposes of the Curriculum • Define the educational experiences related to the purposes • Define the organisation of these experiences • Define the evaluation of the purposes	• Draws from Architecture, engineering and educational design • Commences with a statement of end-points • What do you want students to know, do...(discipline and non-discipline) • What evidence will be collected to assess the success of the curriculum ?

Similarly, in the Non-Technical, non-scientific approach there are many different curriculum models (Ornstein and Hunkins, 2004). The key focus in this approach is not on the content, or learning outcomes, but on the learner. '*Subject matter tentatively selected in the development process has importance only to the degree that a student can find meaning in it for himself or herself*' (Ornstein and Hunkins, 2004, p207). The more student-centred approaches would align themselves with this approach. In higher education programmes today, there are aspects of this approach build in, often in the later years of a programme. However it is important to consider whether this approach can be strengthened in many programmes to allow for more a more student-centred approach.

Two examples of the non-technical approach are set out in Table 5 below. The Deliberative model (Ornstein and Hunkins, 2004) addresses the gap between complete freedom for students to choose what they would like to learn and the prescription of learning. The model suggest a deliberative process whereby the educators make known their ideas to the students and together plan a educational journey, constantly feeding back and adjusting this plan. The post-positivism models take this one step further, where they advocate less intervention by educators, even advocating chaos to occur in order that order may result. In this approach *'students are not presented with ideas or information with which they will agree, but with encounters with content arranged as such that students will see that they have to seek more to find frameworks and generate fresh understandings*' (Ornstein and Hunkins, 2004, p213) . This approach is challenging to record, without being prescriptive, however it can allow for unexpected and creative learning to occur.

Table 5: Two Examples of the Non-Technical/Non-Scientific Approach.

The Deliberative Model	Post-positivism models
• Focus on how select content, procedures and questions one would employ • Reality exists in circles, not linear steps. • Draws on systems theory • E.g: Hunkins conversation approach	• Embrace uncertainty, chaos allowing order to emerge • Curriculum should help student search for instabilities • These do not result in a specified model (usually) but emphasise the social and emergent quality of curriculum

In the higher education literature, Toohey's (2000) key textbook on curriculum design, describes the main curriculum models in this context (See Table 2). She elaborates on how these models view knowledge, express goals, organise content, assess learning and what resources are needed. She also gives examples of where these models are used in

different disciplines. Table 2 sets out how these parallel with the other authors mentioned in this resource guide. Her experiential and social crucial models are elaborated on in Table 6.

Table 6: The Experiential and Social Critical Models (Toohey , 2000)

Experiential	Social Critical
• Belief in importance of personal relevance and learning from experience • Adults learn in order to be able to do, solve problems, live life in a more satisfying way • Curriculum organised around life situations • Authentic assessments	• 'Seeks to develop a critical consciousness in students so that student become aware of the present ills of society and are motivated to alleviate them' • Content drawn from significant social problems of the day • Collaborative group work/projects

There are a collection of models that are organised around how students cognitively process information either individually or how this is enhanced by groups/peers. These can vary from the more cognitive information processing models to the more social models, i.e. social constructivism. A popular approach that is emerging in this area (which is also aligned with subject-centred design) is that of organising curriculum around the key challenging, yet significant, conceptual areas in a discipline. Land et al (2005) have described these areas as threshold concepts. This approach seems to have become popular with the more technical/scientific approaches, for example, 'programming' as a threshold concept in Computer Science.

Another way of exploring these models, is examining them in more depth from the Subject-Centred or Learner-Centred Models (described as 'Designs' by Ornstein & Hunkins, 2004). As can be seen in Table 2, this idea can also be traced back to the idea of Product/Process or Technical/Non-Technical divisions. Tables 7 and 8 list out some ways in which these designs are approached.

Table 7: Subject-Centred Designs

Subject-Centred Designs

Discipline Based	Centered on the conceptual structures of the discipline and inform the work of people in the discipline (they ignore knowledge that lie between disciplines but may be the future)
Broad Fields	Merge several disciplines into an interdisciplinary subject area (allow more correlation, integration, holism) , e.g. Science, Social Studies, Humanities,
Conceptual Clusters	Broad Fields can have clusters: e.g. 'Science , Technology and Society' or 'Colonialism', etc
Theme-Based	Emphasises importance of finding patterns/ relationships between concepts. Based on culture, experiences.

Table 8: Learner-Centred Designs

Learner-Centred Designs

Negotiated	Students, within some boundaries of the resources available, negotiated what they will /need to learn. Use of learning contracts, variety of assessments
Process Based	Emphasis on the process of learning, i.e. critical thinking, information retrieval, less on the content. Assessment should reflect the process, i.e. self assessment, reflection, etc.
Integrated Curriculum	Design that encourage integration of concepts across, within and to future knowledge. (Finks: Significant Learning; Spiral Curriculum)
Problem-Based Curriculum	The learning that results from the process of working towards the understanding of a resolution of a problem. The problem is encountered first in the learning process (Barrows, 1980)

Many of the Learner-Centred designs are used where educators feel the students may be able to make more informed decisions, such as Masters programmes and in Adult Education programmes. However, where resources will allow, this assumption could be challenged and maybe students in earlier years of a programme or throughout an undergraduate programme, may be able to make these decisions. Problem-Based learning

is a curriculum model particular, but not exclusively, advocated in professional programmes (For more details on this approach see: Barrett et al (2005) Handbook of Enquiry and Problem-based Learning Irish Case Studies and International Perspectives http://www.aishe.org/readings/2005-2/)

In Conclusion

This resource guide gives an overview of the literature on these curriculum models. No *one* model is ideal and no *one* model may suit a full programme. However, identifying and being consistent with these models will help support cohesion and clarity of approaches in your programme. For example, it is typical in some Science and Professional Health Science programmes that the early years may have a more technical-scientific approach, whereas later years may have a more experiential approach. However, in relation to student engagement could these models be more integrated and streamlined across a programme? Is it valuable to think back over a programme and question what would a graduate remembers, and still finds helpful, three years later (Fink, 2003)?

As a programme team it is worth exploring your views on these different models and using them to help design and deliver your programme to obtain the best and most coherent educational experience for both your students and the staff who teach on this programme.

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