

The design of a design course: using a systems approach to address the needs of teachers and students

Abstract

In 2009 Western Australia will introduce a suite of new courses in senior secondary education. Previously only a limited number of subjects could be used to obtain a tertiary entrance rank, by which students are selected for university entry, this will now grow to 52 courses. One of these courses is Design. The Design course subsumes several former subjects, including Visual Communication (Photography), Graphic Technology, Technical Graphics and elements of the Art and Design subject. These subjects come from both the Arts and the Technology and Enterprise learning areas. Addressing the needs of both these learning areas, whilst maintaining and valuing their unique subject knowledge, has required careful management of course development.

Particular concern was raised by teachers coming from a Manual Arts/Technical Graphics background. Early versions of the course omitted specific mention of these areas and teachers were concerned that the subjects they had spent time developing might be overlooked. In some cases long careers had been invested in the subject, especially in Technical Graphics.

In resolving these tensions it was necessary to look at the larger picture and to see the course, its development and teachers' responses in the context of a whole system. Extensive consultation was carried out with teachers from all systems and sectors; Government, Catholic Education and Independent Schools, and all relevant professional bodies. In response to the feedback obtained several processes were put into place to guide the development of the course and to gain teachers' acceptance of the new courses.

Keywords

Design education, curriculum, education system, consultation

THE DESIGN OF A DESIGN COURSE

In 2009 Western Australia will introduce a suite of new courses in senior secondary education. Previously only a limited number of subjects could be used to obtain a tertiary entrance rank, by which students are selected for university entry, this will now grow to 52 courses. One of these courses is Design. The Design course subsumes several former subjects, including Visual Communication (Photography), Graphic Technology, Technical Graphics and elements of the Art and Design subject. These subjects come from both the Arts and the Technology and Enterprise learning areas. Addressing the needs of both these learning areas, whilst maintaining and valuing their unique subject knowledge, has required careful management of course development.

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Senior Secondary education programs in Western Australia are managed by the Western Australian Curriculum Council, which sets the curriculum and monitors standards through moderation procedures and examinations. In 2006 I was asked to help in the development of the new Design course and subsequently became a full time employee of the organisation. As a newcomer to secondary education (I had previously been a design educator at a Western Australian university) I found that I needed to understand the problem in relation to a whole system. The first draft of the course was produced by writers from outside the secondary sector, with input and consultation from representatives of the major sectors and bodies in secondary education that related to the course.

As a newcomer I spend a great deal of time learning about the overall secondary education picture and the sensitivities and tensions inherent in it. It helped to understand the system and to see it as a whole and this was in fact essential to effectively developing the new course.

Simply put, a system is an organized collection of parts (or subsystems) that are highly integrated to accomplish an overall goal. The system has various inputs, which go through certain processes to produce certain outputs, which together, accomplish the overall desired goal for the system. ... For example, an organization is made up of many administrative and management functions, products, services, groups and individuals. If one part of the system is changed, the nature of the overall system is often changed, as well -- by definition then, the system is systemic, meaning relating to, or affecting, the entire system. (McNamara 2008)

This paper describes some of the elements and methods used in developing the course, but for these to be effective it required reference to the system and to see the problems as system problems. There are three major system/sectors who deliver secondary education in the state. They are: government Department of Education and Training (DET), the Association of Independent Schools Western Australia (AISWA) and the Catholic Education Office (CEO). There are also private providers. Each of these providers manages the curriculum and is responsible for maintaining standards established by the Curriculum Council. Together these subsystems make up the large system in which this course design took place.

From the system point of view there was one major factor that helped shape progress. In April 2007 at the instigation of the state government a series of Teacher Juries were held on each of the new courses that were to be implemented in 2008. The Electoral Commission established a jury for each course that represented the balance of male and female teachers and country versus city teachers that would be implementing the new courses.

These juries reviewed the courses and decided on whether they believed the course was ready for implementation in 2008. In the case of Design their decision was 'Yes but'. There were parts of the course that needed improving and clarification was needed. In view of this verdict it was decided that implementation of the course should be delayed until 2009.

A view of the development of the new programs and the systems' response to them is summarised in the following extract from a paper by the Curriculum Council CEO David Wood:

An interesting aspect of the reform is that between 2002 and 2005, significant time was invested in explaining how the new courses and assessments would work. By mid-2006, teachers had learnt a whole new language: courses of study, outcomes, aspects, levels and so on. With the new assessment arrangements and significant revisions to courses in response to teacher jury advice, much of what was learnt had to be 'unlearnt'.

Initially, teachers were annoyed, particularly those who were implementing the new courses, including English. Straight-forward, 'tell it as it is' communication of key messages helped with this 'un-learning' and helped build confidence in our reform. This approach helped teachers understand why the changes made at the beginning of 2007 were necessary.

The straight-forward approach used by course officers and those responsible for teacher professional development has reinforced these key messages."

(Wood 2008)

One of the possibilities that became apparent in the process of developing the course was that course contexts could be used to provide structure to the course content. In late 2006 a Lotus Blossom Chart was devised that mapped the main themes within the existing courses subsumed by Design.

The Lotus Blossom Diagram places the primary topic or theme in the centre of a chart; sub themes are identified in a group around the central theme. These sub themes are in turn moved out to become the centre of another cluster. This develops a set of terms and themes that relate to the central topic.

The diagram covers most of the themes that are currently in the existing subjects. By colour coding these to show those that have strong relationships it is possible to cluster into groups. These groups of themes and terms can then be labelled to identify the major teaching contexts that exist.

B+W	Digital	Colour	3D	Equipment	Sources	Posters	Colour	Form
Complex	Photo	Equipment	Cartoon	Multimedia	Film+TV	Graphics	2D	Pattern
Basic	Darkroom	Subjects	Advertising	Time	Dynamic	Flat	Surface	Packaging
Posters	Brochures	Packaging	Photo	Multimedia	2D	Interior	Furniture	Workshop
Magazine	Graphics	Covers	Graphics	Design	3D	Archi	3D	Colour
Communic	Pattern	Politic	Tec Graph	Textile	Craft	Urban	Objects	Craft
Product	Drafting	CAD	Tactile	Colour	Texture	Workshop	Jewellery	Hand skill
3D	Tec Graph	Objects	Pattern	Textile	Surface	Small	Craft	Materials
Form	Urban	Archi	Equipment	Craft	Art	Individual	Art	Media

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Form	Urban	Archi	Equipment	Craft	Art	Individual	Art	Media

Figure 1: Lotus Blossom Diagram looking at the factors that impact upon the way that Design Contexts can operate and be classified.

A suggestion was that the sub-headings: Digital; Surface and Dimensional, under the umbrella heading Design could capture all the activities that might need to be considered. They could then have sub categories

Contexts Rationale for Design

In consultation with stakeholders involving meetings with representatives from the systems and sectors and professional organisations a rationale was developed for the creation of course contexts. These contexts would enable the delivery of professional development and sample course material and encourage teacher networks for the sharing of resources and ideas.

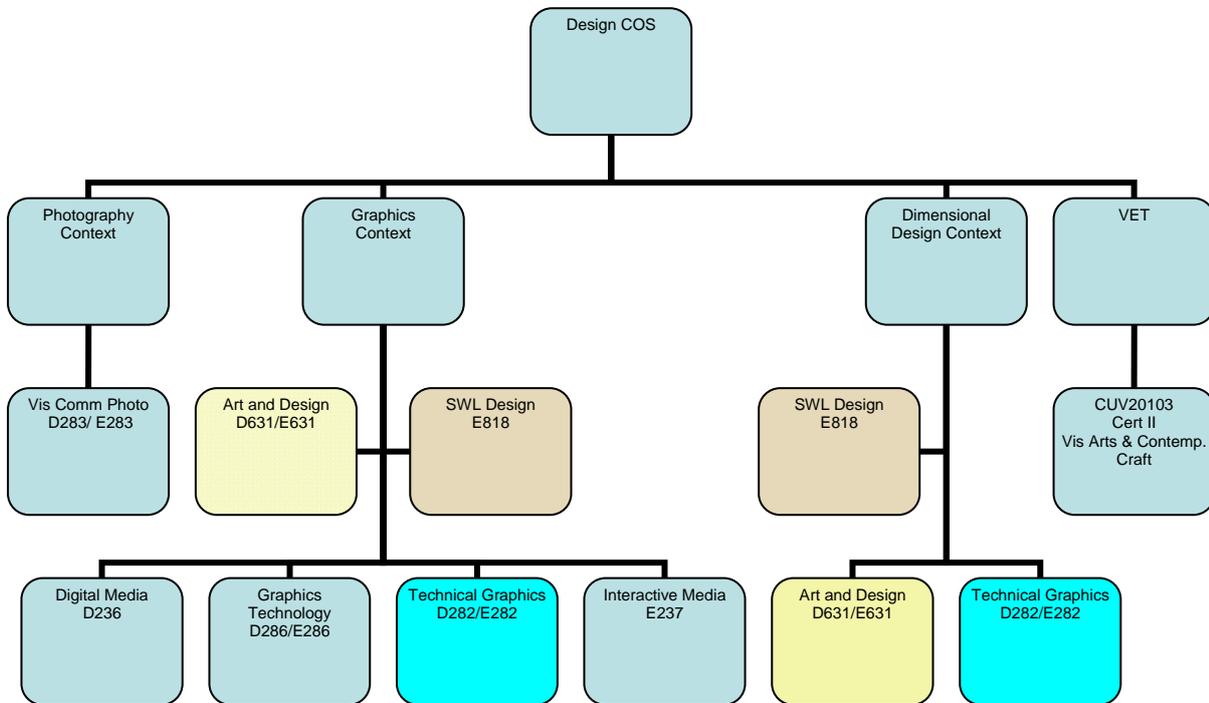
The Design course has subsumed 11 existing subjects. These subjects dealt with content as varied as Textile Design, Technical Graphics and Multi Media. When looking at the content it is clear that there are a number of stand-alone domains that need to be recognised. There are a lot of tasks that could be classified as 2 Dimensional Design, and a few tasks that could be classified as 3 Dimensional Design. If this breakdown is used then Photography and Graphics would need to be part of the same context. There are arguments for keeping Photography separate from the other 2 D units; these include differences in the ways that the tasks are carried out and the facilities needed to teach them. For example, Graphics tasks often rely on iteration, whilst Photography tasks more often rely on development through a range of activities.

The Graphics domain ranges from Technical Graphics to Interactive Media; computers are the main tool common to all these units. Photography, in most schools, relies less on computer use and more on the availability of darkrooms and studio space (though this is currently changing). Dimensional Design is usually carried out in workshops, studios and outside locations.

Five of the current subjects have content that could be taught in more than one context. These units are: Art and Design D631/E631; Technical Graphics D282/E282 and SWL Design 818. Teaching these in different contexts means that students could obtain credit for units in both the Technical Graphics and one of the Graphics/Media streams. This is a logical combination that is currently taken by some students.

These differences justify the development of separate contexts for **Photography, Graphics, and Dimensional Design**, as shown in the diagram below.

Subjects subsumed by New Design Course



Deferral of the Design course

This three context version of the course was reviewed by the Teacher Jury in April 2007 and a recommendation was made that the course only be implemented if greater consideration were given to the Technical Graphics component of the course, including the creation of a new course context to deal with that domain. In response to the feedback from the jury the Curriculum Council executive decided that Design would be among the courses that would be deferred for a further year. Their reasons were:

- The addition of a full context would require significant consultation to take place to ensure that this complex area was well served.
- Rewriting the technical content in a manner that addressed the specifics of each context and teaching would require further consultation and the involvement of teachers so as to ensure that the terms used are accurate and are widely understood.
- Some of the requirements for support material and moderation advice would need significant trialling of the course to provide sample student work.

With the addition of a fourth context the course now offers **Photography, Graphic, Technical Graphics and Dimensional** contexts through which the course can be taught. Each of these contexts form an organising focus for professional development and the development of sample materials and resources.

The Design course will now be implemented in 2009 with the first external exams taking place in 2010. Since the decision to defer the implementation was made, significant consultation has taken place

across the senior secondary system. A Scope and Sequence of Content document has been an important tool in the process of refinement of the course content. This document has enabled fine-tuning of the content and facilitated the pitching of the content at stages of student ability. (A key concept of all the new courses is the separation into stages 1, 2 and 3 with degrees of difficulty relevant to student ability and aspiration, with the stage 2 and 3 course being seen as tertiary entrance pathways).

This scope and sequence document maps the content across all ten units in three stages from Preliminary units to Stage 3 units, using nine content organisers (*Design principles; Design process and methods; Visualising and visual development; Communication theories, models and forms of communication; Meaning society, culture and audience; Ethical and legal issues; Process, methods and techniques of production; Materials of production and Tools of production*). This document formed the basis for refinement work carried out during the consultation process in which teachers in groups worked with hard copies of the document and used them to help in arriving at consensus about what content was relevant to each unit.

The use of paper documents and a writers' template that was used to facilitate the development of sample support material has proven to be a practical and workable method for this project. As part of a response to teachers' needs for support material a total of 25 complete sample unit packages have been produced and published on the council's web site. These packages contain all the information required to teach a unit, including assessment schemes, sample tasks and marking keys, with a complete weekly breakdown. Most of these units were written during workshops, where nine teachers worked for three days collectively to write samples. This process used the writers template, which gave the content for each unit, with room to write in existing tasks that could be used or adapted and a column for new material that needed to be added to cover the unit content.

These templates were available in hard copy and on a server. The server was also used for sharing material and resources among the teachers, who worked on networked computers. All work was delivered via the server and this allowed editing and proofing to be started whilst material was in production.

Other work developed within the system include student work samples to inform teachers about grades and the use of grade descriptors. The grade descriptor process was based on pairwise comparisons (David 1988) of work samples by groups of expert raters. These grade descriptors and work samples form the basis of an elaborate web site, which will be accessible to teachers, showing student performance at each grade in each stage.

All the above work has taken place within the context of a large complex system and a key has been responsiveness to feedback. Because of the nature of the system it would be impossible to foresee all possible variables in planning and therefore the ability to respond and to be aware of concerns is vital

to progress. This work is ongoing and a program for refinement has been established. Further challenges include the training of examiners and the development of examinations for this subject.

CONCLUSION:

This on-going project has been carried out within the context of a large system. Influences that have impacted on the project include political pressures; reactions to proposed change; the need for wide consultation and the realization that Design curriculum is subject to changes brought on by the increased reliance on digital technologies. The use of methods such as content mapping and gap analysis has facilitated course development and has contributed to a better understanding of the whole system and its components.

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