DEVELOPING FAMILIARITY WITH LEARNING DESIGN TOOLS THROUGH SUBJECT ANALYSIS

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Abstract

The application of quality processes to tertiary teaching can result in a more team-based approach to course curriculum planning, the instructional design of individual subjects or units, the learning support associated with subject implementation and subsequent evaluation. The "art" of teaching requires more explicit communication within and across different teams that may be involved in each stage. Learning designs provide tools for design teams to map out learning environment attributes such as resources, tasks, people and interactions. Experienced teaching academics, unfamiliar with such tools, require orientation to them to achieve their communication potential. One way to introduce learning design models is to apply them to past subjects as tools for analysis. Do they help identify design imbalance? Do they provide a scaffold for thinking about future subject design? Four simple local design models are explored as potential analysis tools and applied to a subject case study taught prior to the lecturer's awareness of these design models.

Keywords
Learning design, design teams, quality, design patterns

Introduction

Quality teaching with information and communication technology (ICT) is the ability to use experience and theory to blend tools, challenges and student needs in the design and nurturing of an environment that will engage students in meaningful learning (Jonassen, Peck and Wilson, 1999) – learning that is active, constructive, intentional, authentic and cooperative. The educational design of such an environment is critical (Goodyear, 2005). Despite the allure of a focus on the technology tools, their selection may be less important than what students are expected to do, how you support them, and how they engage with the challenge.

In institutions where quality teaching processes have been implemented (plan, act, review, improve), lecturers are required to closely monitor how a range of students use selected tools then apply these findings to the improved design of future challenges. When learning activities that feature the use of ICT are lengthy in duration and complex in nature, the analysis and reflection demand considerable time to incorporate differences across groups of learners. Patterns that emerge from experience – the heuristics of practice – need to be shared if theoretical understanding is to be furthered. One challenge is finding a way to clearly articulate the richness of the design and implementation of a learning environment, given the blended nature of many formal learning environments and the considerable differences across faculties and institutions.

With the permutations and combinations of ICT tools networks and communities in the higher education sector, and the global forces that are currently shaping its future, learning environment design is less likely to remain the activity of an individual academic. The quality emphasis (for example AUQA, 2005) has prompted more distributed *team* responsibility for curriculum design with selection and integration of components such as graduate attributes or professional skills in subjects or modules relative to their position within a broader course.

To increase higher order learning outcomes and shift curricula away from a content to a problem or task based learning design, Oliver (2004) argues that a design team needs to address appropriate description of course objectives, better align assessment strategies to these objectives and reduce the dominance of content acquisition as an end in itself. He suggests re-engineering objectives into an outcomes-based approach that focuses on performance and capabilities. Many of the assessments tasks that align to this emphasize more of a portfolio approach and self and peer assessment. Oliver (2004) describes instructional design in a discipline-based course design process as learning design planning, resource selection and selection of assessment. It sits sandwiched between course design (functional specification, objectives, delivery mode) and digital resource development (materials design, resource development).

A second challenge is to facilitate team communication for academics with little free time outside demanding research agendas. While a course design team may feel it has identified appropriate objectives, and the learning design team (which may be a different group) has aligned these objectives with assessments, tools, resources and support processes, the lecturer/s and tutors responsible for facilitating student learning may not be aligned with design team expectations, or may not have the personality, experience or teaching style to carry off what has been recommended. The suggestion that "[D]eep and unexplored philosophical differences within the team setting up a new course can lead to fatal divergence in the day to day operational work" (Goodyear, 2005, p86) flows through design, implementation and evaluation of a course.

Evaluation studies published by coalface teaching staff help to identify critical factors in the successful implementation of a pedagogical refinement or innovation at the context rich level of day-to-day practicalities. These studies typically show the plans for the innovation alongside the results so others are alerted to the nature of the discrepancies. When learning design and teaching *teams* are involved and they differ in composition (common with staff changes), learning designers need terminology to clearly articulate their design in a format that is easy for those at least *within* the discipline to understand. Those facilitating student learning are then able to report on the student outcomes in relation to the intent and nature of that design. Without consensus on "what we set out to do" there is little design transfer value in the report of "what we achieved". The more people involved in teams at multiple levels (from curriculum planning to evaluation), the more critical communication becomes to establish alignment of intent. A learning design is one tangible product of communication about plans, while an evaluation report is one tangible product of communication about achievement that should refer to the learning design.

The concept of a sharable planning document such as a learning design would be foreign to many long-term teaching academics who have typically adopted a unique and idiosyncratic way of planning a subject, influenced over the years by collaborations with colleagues within their discipline and within and across a number of institutions. One possible way to introduce such designs is through the process of applying design models to the *analysis* of a past subject with which they are familiar. This paper explores four learning design models that are local examples (an authentic situation) and applies them to a subject case as tools for analysis. Do they assist the process of analysis by identifying different design aspects that require attention? Do these different filters (models) impact on lecturer thinking about the design of new subjects? The theoretical basis of the design models is explored to develop a case presentation framework that is then applied to a class the author taught prior to any awareness of these learning design models.

Design Terminology

Learning Designs (AUTC Framework)

In the Australian Universities Teaching Committee funded project: *Information and Communication Technologies (ICTs) and Their Role in Flexible Learning* (*http://www.learningdesigns.uow.edu.au/index.html*) Agostinho, Oliver, Harper, Hedberg & Wills (2002) define learning design as "a variety of ways of designing student learning experiences, that is, the sequence of activities and interactions." They draw on the work of Oliver (1999) that emphasises resources, tasks and supports. Each is functionally defined based on the context of

their use rather than physical properties, formats or delivery method.

The project aim was to facilitate the sharing and uptake of designs and further disseminate generic tools, templates and guidelines (Agostinho et al, 2002). The project team used geometric shapes as icons to represent sequences of tasks/activities (squares), resources (triangles) and supports (circles) in a visual communication of a learning design within its timeframe. The drivers for this project included poor dissemination of ICT-based learning exemplars beyond the institution level, lack of clear generic design principles due to varied theoretical views of learning, and a more dominant focus on learning objects and digital repositories than the organising frameworks that give these objects purpose and context (Agostinho, Oliver, Harper, Hedberg and Wills, 2002). Learning designs emerging from case studies submitted to the project team were to be evaluated against the four key principles for high quality learning identified by Boud and Prosser (2001) – engage learners, acknowledge the learning context, challenge learners and provide practice. Since these principles are mainly expressed at the stage of design implementation, the reviewers could only evaluate design *potential* based on the material they requested.

Those contributing cases to the project were asked to include: a description of: tasks, resources and supports within a timeframe (to enable a graphic representation of the learning design); the discipline; position of design in broader study program; number of students and learner profile; planned learning outcomes and assessment requirements; IT requirements; delivery context, research findings and copies of resources used by learners. The feedback from some evaluators on the evaluation instrument highlighted that since they were unable to view student work, they were unable to fully comprehend the case context. The project team acknowledged that formative self-evaluation by design teams or summative evaluation based additionally on student feedback may be the most effective ways to use their evaluation protocol. The list of required case study information has been used by the author as a baseline for class data collection to identify learning designs through reflective analysis.

Materials and Interaction: Caladine's Learning Activities Model (LAM)

Caladine (2003) focuses on materials and interaction in his Learning Activities Model, which is represented as a circle with five sectors – provision of materials, interaction with materials, interaction between learners, interaction with facilitator and intra-action. The term *material* is used "to differentiate between human and non-human resources" (Caladine, 2003, p 126) and describes aspects that are provided for, or delivered to, the learner. All the other components of the model deal with *interaction* as defined by "reciprocal action" (Caladine, 2003, p 130). Materials include voice and associated visual aids, print materials and audiovisual media. Students need to interact with these materials through search and media delivery control processes. Forms of interaction with people relate to direct dialogue, email, online discussion or assessment feedback. Dialogue may be formal, informal incidental or social among class or broader community members. Intra-action is learner-initiated activities that support learning, such as informal or formally structured reflective practice, critical thinking and moments of insight. Table 1 relates the two models.

Table 1: Author's view of intersection of Caladine (2003) model with AUTC Model

Caladine	AUTC Learning Designs Elements		
	Resources	**Tasks**	**Supports**
(PM) Provision of Materials	Content resources	Determine materials required to begin activities.	Templates and study guides
(IM) Interaction with Materials	* Process outputs may become a shared resource (eg annotated material)	Designed into activity structure – particularly with authentic activities. Determine how much students seek their own materials.	* Outputs may be shared on discussion forum for support – (eg excellent resources found)
(IF) Interaction with	* FAQ a typical resource output	Designed into activities or tasks	* Guidance and feedback a typical

facilitator	from the facilitator		support from facilitator
(IL) Interaction between learners	* Notes become a resource if shared in group work or more widely	Designed into activities, particularly collaborative and cooperative ones.	* Designed in when peer feedback requested or permitted
(IA) Intra-action	Past activities can model self-regulatory behaviour	Designed into activities that require process notes and reflective analysis.	Templates and tools can support the structure for intra-action

* Opportunity to share facilitated by online communication facilities

Both the Caladine and AUTC models can be applied in a granular way – for example to an activity, lesson, major task or module. While the AUTC model puts the prime focus on the *design* of learning tasks that will hopefully engage learners, the Caladine model puts the emphasis on interaction. Highlighted in Table 1 is the potential to dramatically expand resources and supports in an online environment since you can readily capture and store interactions. Thus resources and supports could include for example advice, guidance, annotations, discussions and debates of past cohorts of students and facilitators. This ability to capture snapshots of stages in the learning process of a diversity of learners enables the development of communities among those given access to this online environment and reduces student reliance on a small team of tutors or facilitators.

Feedback: The T5 Model

While feedback is inherent in both AUTC and Caladine models, and can be provided by the facilitator, learner (reflection and self-assessment) or other learners (peer comment or assessment), it is the feature highlighted in the T5Model (Salter and Richards, 2005). The guiding principles behind this model, adopted at the University of Waterloo, Canada, are a learner-centred approach to course delivery, emphasis on designing tasks that engage learners with content, emphasis on feedback to that task, transparency in the use of this model in the course delivery system, and flexibility to re-use learning objects developed for such a system. The five Ts of the model enable designers to remember:

- Tasks – specific activities that engage learners with the material to produce a deliverable with a feedback component
- Tutoring – feedback, scaffolding and guidance
- Topics – learning resources of any media element
- Teamwork – represents collaboration, team makeup, team roles
- Tools – support the other Ts and include online conferencing and other software

"The structure of the T5 model helps faculty to balance the elements of instruction with an emphasis on the learning objectives, learning tasks and student feedback and avoids over emphasis on the course topic" (Salter and Richards, 2005). A key design feature is the presentation of tasks prior to learner access to resources as a guiding framework for exploration.

Design Patterns (Goodyear, 2005)

In conceptualising educational design, Goodyear (2005) takes a step back and places it in a framework that links the conceptual (philosophy, high level pedagogy) and procedural (pedagogical strategy, pedagogical tactics) levels of a *pedagogical framework* with the day-to-day realities of a concrete *educational setting*. Both of these sit within a unique *organisational context*. This identifies the space between the philosophical realms of intent and real world experience – it captures the potential gulf between those who write about the design process (intent) and those who write about the reality of an instance of implementation. A quality lens requires that we link these arms in a continuous fashion – hence illustrating the need for design teams to communicate

their intent with terminology that implementation/evaluation teams can cross-reference in their evaluation reports.

Goodyear (2005) describes the *educational setting* using the language of tasks, learning environment and organisational forms:

- Tasks – "…need[s] to be sufficiently well-specified that the chances of a learner engaging in unproductive activity are kept within tolerable limits."
- Learning environment – "… the physical/digital environment within which learners work. It includes everything from paper and pen to textbooks, computers, the internet and all its online information resources."
- Organisational forms - "… (classes, study groups, project teams, roles, etc) from which learners create their learning relationships." (Goodyear, 2005, p90)

When in the iterative design process, Goodyear (2005) argues that many decisions are made while teacher-designers are using a course support system such as WebCT or Blackboard. Although teacher-designers may well have access to local templates or external example designs such as the AUTC website, they won't have access to examples and templates constructed to capture and distil the practical implications of research-based knowledge. Goodyear's (2005) solution is a model that uses the concept of design patterns. These clearly articulate a design problem, provide a design rationale that touches pedagogical philosophy, research based evidence, and experiential design knowledge prior to offering a design solution. In presenting an example of the design pattern for 'Discussion Group', he attempts to show the conceptual, philosophical, technical and practical slices of a design.

The first three models sit within the realm of Goodyear's educational setting. Table 2 compares the terminology used within the Learning Designs, Learning Activities and T5 models with that used by Goodyear for the educational setting. The major categories that are common to all models relate to tasks set for students, concrete resources (whether materials or tools) and the organization and support provided by people.

Table 2: Author's comparison of the terminology used in four models

Categories described	Learning Designs	Learning Activities	T5	Design Patterns
Tasks set for students	Tasks or activities	All five elements	Tasks	Tasks
Concrete **resources** – materials and tools	Resources and Supports	PM, IM	Topics, Tools	Environment
People - how they are organised and provide support	Supports	IF, IL, IA	Tutoring, Teamwork	Organisational form

Class Case: Postgraduate Teachers - ICT in Education

The structure chosen to present a class case will include brief mention of the pedagogical framework (Goodyear, 2005), a description of the educational setting that includes process outcomes, a tabular profile of Caladine's interactions, the author's adaptation of an AUTC Learning Design class timeline, and a profile of T5 feedback opportunities. The final representation is a design pattern for one key learning strategy – Web Study Guide construction. The aim is to determine the value for the lecturer in analyzing and representing the class experience through different learning design models. What terms are useful for conceptualizing future subject design for those who are fluent and those less conversant with educational theory?

Case Perspective: the Pedagogical Framework

The author's teaching philosophy aligns with a constructivist approach; the high level pedagogy is collaborative design; a dominant pedagogical strategy is multimedia construction and the pedagogical tactics vary with the needs of a key driving force – assessment.

Case Perspective: the Educational Setting

The class involves a postgraduate cohort in one of two compulsory introductory subjects in the Master of Education (IT in Education) at the University of Wollongong. Teachers and trainers are introduced to the theoretical underpinning of educational technology and required to start developing authoring skills for a web environment. The assessed tasks include a set of six heuristics inspired by subject theory or relevant workplace experience (30%); a pair of concept maps at weeks 3 and 11, showing the transition in understanding of key concepts in the field, followed by an analysis of growth in conceptual understanding (20%); five web study guide reviews, accompanied by a brief analysis of web study guides as a means of supporting flexible delivery and a set of design guidelines based on your learning style (25%); a web study guide developed on a topic either selected from a list of options or negotiated with the lecturer (25%).

Fortnightly face-to-face classes involved discussion and activities to explore difficult concepts. Individual online activities occurred in the intervening weeks. A weekend workshop was held to support students' web authoring skills. Students used the online environment and class time to engage in peer tutoring and peer review of web study guides mid-production. The laboratory environment contained enough Macintosh computers for students to work in pairs, yet little face-to-face class time was involved in multimedia (web authoring) skill development outside the designated workshop. There were also projection facilities. Computers were used predominantly to locate resources, explore and review other sites, and for student presentations of web study guides. Most media elements were restricted to images and text. Students sourced animations from other sites, despite their awareness that these animations were often more a user distraction.

Students reviewed past products from a learner's perspective. As they generated a list of desirable and undesirable characteristics relative to their learning style, this was translated into a set of design recommendations that provided a starting point for the production of their web study guide. This reciprocal relationship between review and production tasks was clearly explained to students, and the same assessment framework for both tasks reinforced the relationship. The criteria within the framework encompassed content depth, navigation clarity, learner engagement, links to other resources, and provision of student feedback. Criteria were discussed in class at great length and on several occasions, as students began the review process that prompted them to develop an understanding of varying scales within each criterion.

As students used their design guidelines as a basis to frame their web site construction task, significant learning episodes were noted in the parallel heuristics and concept map tasks. The perspective switch from review to production task prompted audience awareness throughout production, enhanced by formative assessment of the study guides of peers. Initially in reviews, students were extremely critical of the work of past students – comments were harsh and the guidelines for a good web study guide were stringent. Following the production task, students realised just how difficult the application of those guidelines was, and they identified a range of reasons why.

Case perspective: the Caladine (2003) LAM model
Table 3 illustrates the class as viewed through the Caladine model, emphasising interactions and materials. Comments are written from the lecturer's perspective with the benefit of hindsight.

Table 3: Analysis of class activities using the Caladine (2003) LAM

Caladine	Class Details
PM	Online and print readings around core topics; workshop support material for website development; activity sheets for face-to-face class activities.
IM	Students drive their access to relevant readings and also source their own readings. Some invest more time in a topic if they choose it for web study guide (WSG)

	production. Students have limited laboratory access. The students' work environment is a source of material for heuristic tasks. The lecturer guides student interaction with web site construction software "workshop" style.
IF	Interaction is initially Lecturer dependent due to task driven timetable and limited student production expertise; more a facilitation role as web study guide production progresses and peer review increases collaborative atmosphere. Facilitator is available in class, online, and via telephone or email.
IL	Collaborative atmosphere in class activities; "show and tell" sessions for concept maps and their analysis; group review of web sites to test and clarify criteria for assessment. Peer review of WSGs prior to their completion. Students are exposed to the thoughts and ideas of past learners through their WSGs.
IA	Evident in heuristics, concept map presentations, concept map analysis and WSG design guidelines written from a personal perspective.

Case perspective: the AUTC learning design timeline

The AUTC model emphasises task design, with associated provision of resources and supports. The time-based relationships among resources, tasks and supports are illustrated in Figure 1. In addition to the AUTC graphic conventions, the author has conveyed the source of a resource or support (shown in the outline pattern) as an important indicator of student versus staff activity. Secondly, related items (shown with fill colour) indicate the total "resource" load of a task (resources plus supports) and relationships among tasks. Only assessable tasks are shown and they are placed at the time they are due. Time is displayed on the horizontal axis simply to accommodate the number of parallel tasks. The emergent and reflective nature of Figure 1 indicates what happened, rather than what was necessarily conceived (but not visualised) at the time of subject design. Aspects of Figure 1 could not necessarily be conceptualised at design stage.
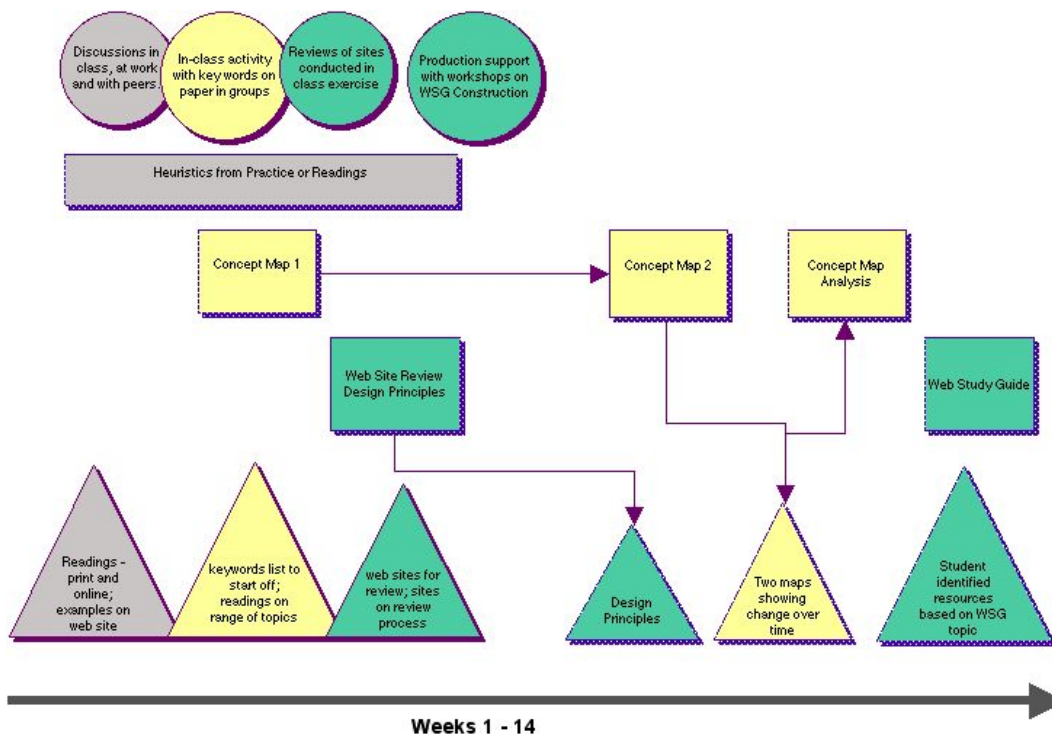

Figure *1:* Resources, tasks and supports in the class timeline – an adaptation of the AUTC model

Case perspective: the T5 model

The T5 model highlights the nature of opportunities to provide feedback, support and scaffolding to learners as they engage with content *prior* to final assessment. Table 4 presents the author's interpretation of the subject through this design model.

Table 4: Author's interpretation of T5 model applied to class

Tasks	Tutoring	Topic	Teamwork	Tools
Heuristics linking theory or practice	Feedback on early submissions allows student adjustment to the task.	Readings on range of topics	Largely individual work	Online discussion
Concept maps 1 and 2, followed by analysis of growth	"Show and Tell" session in class with first map reveals diverse style and substance.	Keywords for initial maps	Community sharing of perspectives	None
WSG reviews, analysis & design guidelines	Students use language in class discussions. Fixed criteria for review & production offer scaffold.	Web sites for review	Students share review perspectives	None
WSG construction on student selected topic	Peer review in class for formative feedback.	Student sourced	Individual skill expression	Web authoring software

Case perspective: Goodyear's design pattern

The design pattern emphasises a slice through philosophy, values, theory, empirical evidence and the iterative design process as it targets a key learning strategy. Thus the focus is not the whole subject experience. Below is the author's representation of a design pattern for the strategy of learning through construction based on student construction of a Web Study Guide.

Web study guide construction

This pattern is concerned with knowledge construction and representation using a variety of media and construction tools for a web-based environment. It is a way of helping implement the patterns Learning Through Construction, Collaborative Learning, Information Literacy and Software Development.

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Problem: Multimedia construction for the web environment is a complex learning activity in a face-to-face class environment with adequate ICT infrastructure. In a networked or blended environment, the degree to which it can be supported depends on available tools within the delivery system, the nature of group arrangements, task ownership, production skills required and conditions set for assessment.

Learning through construction
It has long been acknowledged (Wilson, 1993; Jonassen and Reeves, 1996; Brown, 1997) that the development of hypermedia products is a powerful learning strategy. Put simply, we learn when we have to teach others and building a concrete, media-rich representation of ideas helps us formulate them more clearly and embellish or illustrate them more richly. Despite the hype that bells and whistles fool people, excessive forms and formats typically illustrate lack of ability to focus on core ideas.

Process or Product as Motivator
Process Focus: When extreme emphasis is placed on "learner as designer" (Jonassen and Reeves, 1996), there is no pressure applied regarding the nature of the product. The journey is important, there is less concern about refinement of particular production skills and more emphasis placed on student-initiated design and development with just-in-time skill support. Knowledge construction tools need to be simple to use.

Product Focus: When extreme emphasis is placed on "designer as learner" (Jonassen and Reeves, 1996) there is maximum pressure placed on the quality of the product and production skills are

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highlighted. Any body of knowledge assimilated and accommodated in the situated and authentic activity is regarded as a fringe benefit. Frequently mastery of the production tools is one focus.

Where you choose to sit along the process to product continuum is determined by decisions you make on a number of dimensions: Point of emphasis (journey or destination); Goal (who determines and when); Media selection (dictated or negotiated); Needs of individual (subsumed by product or paramount in process); Record keeping (resource lists and timelines or development of key ideas); Focus of reflection (product or process evaluation).

Reviewer to Producer Strategy
In any production process, the step from browsing (using) to authoring (producing) can be frustrating even for average level computer users. A simple strategy is to let students firstly review products according to criteria that are discussed at length, then produce using the same criteria for assessment.

Feedback and Grouping
Allow students to peer review their work as they progress. Even though the task may be individual, you allow them the benefit of constantly flipping from producer to user, and gaining insight from the strategies adopted by others. Capture reflections on process or key issues in parallel assessment tasks.

Solution: Review prior to production. Consider process/product balance across a range of assessable tasks; consider the same assessment criteria for review and production; provide opportunities for formative peer review; provide a framework for the limits of the activity; allow flexible topic selection to maximise relevance and sources of feedback.

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Patterns needed to complete this pattern include: Resource Formats, File Management, Tool Review and Portfolios.

Discussion

Two questions were asked in the introduction: Do learning design tools assist the process of subject analysis by identifying different design aspects that require attention? Do these different filters (models) impact on lecturer thinking about the design of new subjects? These questions were asked as part of the broader challenge of finding ways to clearly articulate the richness of learning environment design and implementation that may also facilitate team communication for time poor research-focused academics. Given that the author has featured a case from IT in Education, this paper does not represent a true test of a learning design novice from an unrelated discipline. However the impact of these models on the author's approach to subject development requires consideration. Each question and challenge is now addressed.

The application of successive learning design tools featured in this paper does highlight various subject strengths and weaknesses to the subject designer. These relate specifically to aspects of the *educational setting*. The AUTC *Learning Design timeline* identifies pockets of intense activity for students and staff, in addition to patterns of resource and support provision (whether lecturer or student generated). In the class pattern presented (Figure 1), intense lecturer activity is apparent in the beginning of the subject. Early student tasks develop resources for subsequent tasks. Placement of the assessable tasks at submission time indicates peak periods for formal assessment feedback. The model provides a visual tool that can simply be adjusted to answer "what if" questions with subject re-design. The disadvantage of the model is the ambiguity surrounding what constitutes a resource and a support. The Caladine *Learning Activities model* highlights types of interaction across the full range of activities in a subject or module, not just the assessable tasks. It emphasises the overall balance of student interaction and reflection. Although students complete all assessed tasks individually in the case subject, there is considerable student collaboration in class activities (see Table 3). The *T5 model* clarifies all components on the basis of assessable tasks. It provides an additional focus on feedback as a kind of support (tutoring), identifies student collaboration (teamwork) to balance individual and group tasks, and separates content resources from tools.

Reflecting on the application of different models to subject analysis, the author is now able to make explicit the following approach to new subject development. The *pedagogical framework* of Goodyear (2005) is the level at which the discipline specialist academic engages in core curriculum decisions – that balance of theory, skills, creativity and problem solving that integrates graduate attributes and highlights professional skills. Given that assessment drives and supports the student learning experience to varying degrees (Gibbs and Simpson, 2005), each of us constructs our unique understanding of the process of assessment task design (if in fact it is even explicit at all) and a common language for this link between curriculum and instructional design teams is still emerging (Waters and Gibbons, 2004). Once pedagogical strategies and tactics are chosen (possibly sourced from design patterns of other researchers) and the balance of assessable tasks has been identified, the timeline may be useful to visually map peak periods for students and teaching staff. Completion of the T5 table will flesh out specific details of resources and supports. Finally, the Learning Activities model provides a reminder to consider student reflection.

The challenge to clearly articulate the richness of design and implementation environments may be partially addressed by reporting case studies through a number of learning design models. The models addressing educational setting discussed in this paper do collectively provide useful frameworks for communication among teams involved in instructional design and subject implementation and evaluation. However, they are unlikely to engage course designers or resource development teams in effective dialogue. For the former, the detail is too context specific, while for the latter, it is mainly the components of the specific strategy or student task that frame the work of team members such as graphic designers, programmers and animators.

Conclusions

The author has applied models to a case to illustrate learning designs (Agostinho et al, 2002), emphasise interactions (Caladine, 2003), highlight feedback (Salter and Richards, 2005) and identify design patterns (Goodyear, 2005). There appears to be value in introducing academics to learning design models that frame the educational setting. Through their application to the analysis of a past subject, certain design imbalances can be identified without the domination of content. When more than one model is used, there is a natural increase in richness of case description, particularly when visual models (like the AUTC timeline) complement tabular or descriptive formats. As a carry-over effect, awareness of different models to describe the educational setting has impacted on how the author now considers this aspect of new subject design. Although the critical point of assessment task design remains more elusive, the models discussed provide useful strategies to unpack associated resources, supports, teamwork and tools.

Trials are currently under way with a small number of cross-disciplinary design teams (drawing from faculties, learning development, learning designers and faculty librarians) on the effectiveness of these models as *analysis* tools prior to subject re-design. The next step will be to consider their application to new subject design, once key assessment tasks are identified.

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