Who's designing what for whom? Comparing taxonomies in web-based educational design galleries

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Web-based galleries of educational design examples are a display space for educational innovation and a construction space for the educational identities involved in the growing educational innovation business. Taxonomies of seven web-based educational collections are compared and analysed in terms of how identities are constructed for the educational design model range, the teacher audience and educational design practice. The design collections struggle to form a coherent structural frame around their field of common interest not because they lack structures to build upon but through failure to deal with existing structures, starting with the common interest itself, shared by all without being clearly articulated by any. Other structural blind spots are apparent in the lack of representation for learning in workplace and community settings and in a failure to clearly distinguish the perspective of design user from that of design producer. A sharper focus on the user context in educational design classification would be helpful not only in improving the structure and usability of future educational design collections but also in facilitating communication generally between users and producers of educational design.

Keywords: educational design, instructional design, learning design, repositories, re-usability, dissemination of innovation, e-learning

Introduction: Educational design galleries as an emerging web genre

Well-organised collections of previous work are an essential enabler for designers of learning resources, as for practitioners in any craft. To progress in the field, and to have any sense of direction in the field, designers need to be able to review and draw upon models of previous work. Few learning resource repositories or portals, however, are able to accommodate the specific needs of educational design modelling. Portals such as Ariadne, MERLOT, MIT OpenCourseWare and AEShareware are organised around materials for direct use in subject teaching rather than as design models. Their navigation is based on subject matter rather than design approach. Browsing for educational design approach is not supported. There has been considerable interest in creating educational design collections that address this gap, by making resources available in an explicit educational design framework (Carrick Institute, 2006; Buzza, Bean, Harrigan & Carey, 2005; McNaught, Burd, Whithear, Prescott & Browning, 2003). However, reporting of cases focuses on individual projects (Holt, Borland, Farmer, Rice & Mulready, 2005; Brack, Samarawickrema & Benson, 2005; AUTC, 2003b; Oliver, Harper, Hedberg, Wills, & Agostinho, 2002) rather than online design collections as a genre. Indeed, there is not even a generic name for this type of learning resource collection. In this paper, such collections will be referred to as educational design web galleries, or 'ED galleries' for short.

The paper compares the approaches of seven different galleries in creating a structured framework for their examples of educational design work, focusing on the classification systems or 'taxonomies' that provide the structural framework in each case. To what extent have existing galleries managed to address the key problem of how to structure the complex field of educational design in a way that supports effective online navigation? What indications do they give of how the problem might be better addressed in future? What guide do they provide for new gallery developers?

The paper is written as part of ongoing work on development of classification frameworks for the dissemination of educational design material, but is limited to review of frameworks found in existing ED galleries. It does not propose any new framework. It does not deal with other aspects of the ED galleries such as specific examples contained there. The focus is on the classification systems under which those examples are organised. Review of the vast literature concerning the classification of educational ideas generally is also beyond the scope of a paper of this length. The paper is concerned only with classification frameworks that are implemented in the form of web-based galleries of educational design.

Identifying educational design galleries

Educational design galleries are identified by: (1) a variety of educational design examples in practical learning context (2) construction in website form (3) organisation in categories related to educational approach. Educational design is understood as the business of saying how learning is to be supported in particular practical cases (Goodyear, 2005). An educational resource qualifies as an educational design example to the extent that it presents a particular way of addressing a particular kind of learning need in a practical context. An educational design gallery groups these examples in a way that enables their different strategies of learning support to be viewed collectively, as a range of possible design options for a specific context. An educational design gallery is, in simple terms, a collection of practical learning resources that are indexed by their educational approach. The ability to navigate the collection in terms of educational approach is the key distinguishing feature that separates galleries of educational design from other online repositories of learning resources. The classification system used in the educational design gallery is central to the analysis of the gallery because the classification system is what enables the gallery to function as such in the first place.

Selecting galleries for comparison

Galleries for study were selected according to the three criteria listed above and two extra requirements: that the gallery material be at university level and that the gallery be publicly accessible from the World Wide Web. These limitations arise from the practical conditions of the study itself, undertaken from a university standpoint and dependent on the viewing access that the web provides.

Galleries were located by scanning links pages in the teaching and learning support sections of university websites and recent archives of relevant journals (*Australian Journal of Educational Technology*, in particular). The search focused initially on Australian sources but was extended to Europe and North America when the small size of the local pool became apparent. The search was conducted intermittently in personal time between July 2005 and March 2006. The process was slow and laborious with a large number of sites to be checked and frequent need to examine actual web site contents (not just titles) in order to decide whether criteria were met. A further hindrance was the low level of interlinking between sites. Google searches with keywords "educational' 'design' 'examples' and related terms were of little assistance, serving mainly to confirm the low profile of web-based ED galleries so far. Most existing educational resource sites were excluded from consideration by lack of one or other of the main gallery requirements: either the practical learning context or the indexing of resources by educational approach. Focus on university-oriented galleries and those that were accessible from the web reduced the range even further.

Seven galleries were found that met initial requirements. Five were local initiatives of individual universities and two were government projects. Three were Australian based, three North American and one based in Europe. Six out of seven sites were fully accessible from the World Wide Web. One was situated behind an authentication barrier requiring login and password but was rendered accessible for the purposes of study through presentation at an academic conference where guest login was provided and through subsequent reporting in conference proceedings (Brack, Samarawickrema, & Benson, 2005). The most difficult choice among the seven was DialogPlus Toolkit (fourth on list below). The site focused on development of new designs rather than display and provided selection menus for design features to be added to new designs, but no menus to enable browsing of features in the designs already created. However, the highly developed classification system on the design side of the DPT site made it hard to resist as a taxonomy example. The seven galleries are listed and briefly described in Table 1. For purposes of further discussion, the seven sites will be identified by initial letters as shown in the table.

Table 1: List of web-based educational design galleries with university orientation

Gallery	Description and URL
1. Contemporary Online Teaching Cases (COTC)	Contains interview-based case studies illustrating different approaches to teaching with new technologies at Deakin University, Australia. URL: http://www.deakin.edu.au/itl/teach-learn/cases/
2. DELTA - Designing Electronic Learning and Teaching Approaches (DELTA)	Showcase for work of local university staff in teaching with new technologies. Password protected site but temporarily open to public via guest login in July 2005. Based at Monash University, Australia. URL: http://muso.monash.edu.au/webct/cobaltMainFrame.dowebct
3. DesignShop (DS)	Guide to strategies of instructional design and teaching with new technologies. Contains mix of case studies and learning materials. Based at Virginia Tech, USA. Uses external and local sources. URL: http://www.edtech.vt.edu/edtech/id/index.html
4. DialogPlus Toolkit (DPT)	Online toolkit enabling users to produce design specifications for learning activities, described as 'Nuggets'. 'Nugget' examples created by previous users are available for viewing. Sponsored by UK & US governments. Site hosted at University of Southampton, UK. URL: http://www.nettle.soton.ac.uk/toolkit/Default.aspx
5. Learning Designs (LD)	Collection of learning design resources drawn from university staff across Australia and presented in a generic format designed to facilitate re-use. Product of an Australian Universities Teaching Committee project. Site hosted at University of Wollongong, Australia. URL: http://learningdesigns.uow.edu.au/
6. Teach with Technology (TwT)	Descriptions of learning activities and materials created by local staff drawing on new technologies, Collected in the 'Exemplary Projects' section of the site. Based at University of Minnesota, USA. URL: http://dmc.umn.edu/teach.shtml
7. UMUC-Verizon Virtual resource site for teaching with technology (UMUC)	Guide to use of web in teaching with examples illustrating a variety of strategies. Based at University of Maryland University College, USA. URL: http://www.umuc.edu/virtualteaching/

Method of comparison

The classification structures of the seven ED galleries are compared in a framework based on their web construction role. The classification systems are compared from the perspective of the three main website components: content pages, menus linking the pages together and the homepage that provides their main point of access. Each element is a crucial test of the classification function.

1 Content page level. What is the substance of the classification system used by the site? How is the content conceptualised? What is actually delivered? What sense is made of the notion of 'educational design example'?
2 Menu level. What is the structure of the classification system? How does it partition the content field of educational design? What sort of composition does it make? What range does it offer? What sort of coherence? What perspective?
3 Homepage level. Who is the target of the classification system? How does the classification system frame its intended users and their use of the site?

A website is a layered series of representational processes: from content field through site structure to screen interface (Collard, 2005). Starting with content pages and then site menus before reaching the homepage facilitates an analytical perspective that is informed by where the site comes from in terms of content and structure.

View from the bottom – what's in the galleries?

Each gallery example contains some sort of descriptive outline of educational design ideas and context accompanied in some cases, though often not, by access to the actual design product as used by learners.

The design objects displayed in this manner comprise courses, assessment tasks and formative learning tasks, plus tools and information resources used in all of these. Most sites have around 40-60 such 'examples'. The main areas of contrast at the content level are the kind of detail in the examples given and the naming of the examples as a group.

Detailing of examples
Documentation of the design examples varies from a few lines in length (UMUC and DS) to several pages (LD). Outlines may comprise a tightly structured set of rubrics (LD) or a free-form statement without headings or fixed structure (COTC). The DPT site enables specification of 15 different design features but contains a large number of unfinished test designs left behind by visitors trying out the DPT design tools. The strongest in detailed explanation are the Australian sites, LD and COTC. American sites are better at providing open access to resources as used by learners, enabling the viewer to see how design ideas work in practice. However, the different national approaches to sharing of educational ideas must be left for later investigation. The main point here is simply that ideas on the details needed to make an educational design example are in a state of flux.

Naming of the examples as a group
'Example' is not the word used by the galleries themselves. Each gallery had its own term: 'Teaching Cases' 'Learning Activities', 'Teaching/Learning Activities', 'Teaching Models', 'Instructional strategies', 'Nuggets', 'Exemplars', 'Guides', 'Exemplary Projects'. There was a general idea of an object showing how to teach accompanied by considerable uncertainty about the right words for saying what 'how to teach' and 'showing how' are. It is a paradoxical position for the galleries to be in: on the one hand providing models and standards for a particular subject and at the same time having no clear standard for naming the subject to be modelled – or the process by which modelling occurs. The paradox stretches even further when the subject is teaching, whose business it is to communicate models and standards - and the audience teaching practitioners! The galleries are guides to a terrain whose geography melts underneath them as soon as their different sketch maps are compared. Further evidence of struggle with shifting terrain is found on the next level, the gallery menus.

View from the menus: How are the content items sorted?

At the level of the sub-categories, two types of overall structuring can be observed: one overt and easily observable at the level of individual sites, the other implicit to some degree in every ED gallery but only observable when viewed as a group. The structures of the individual sites, summarised in Table 2, are the easiest place to start.

Table 2: Internal structuring among educational design sub-categories for each ED gallery

Gallery	ED sub-categories grouped as	Internal structuring
COTC	One menu –'Approaches to learning'	No particular sequence within this menu
DELTA	One menu – 'Learning activities by strategy'	Based on skill focus - uses Bloom's taxonomy but very selectively.
DS	Two menus – 'Popular Teaching Models' & 'Web-Based Instructional Strategies'	'Popular teaching models' are organised on a continuum from 'top-down' to 'bottom-up'. 'Strategies' list has no internal structure.
DPT	Multiple branching menus - too many to list here	Two basic divisions – 'Nugget' (aka 'Activity') and 'Task'. Basically a division between options at level of general strategy vs options at level practical action, teaching tactics. As for DS (above).
LD	Three menus – 'Exemplars', 'Guides', 'Tools'	Exemplars are grouped in four types of 'learning focus' derived from taxonomy in Oliver et al. (2002), plus one unrelated category.
TwT	One menu – 'Exemplary projects'	No particular sequence within this menu
UMUC	One menu – 'Teaching / learning activities'	No particular sequence within this menu

The galleries form two groups in terms of menu structure. One group has some sort of internal order within its educational design sub-categories. In the other group, educational design sub-categories form a more or less random sequence, shopping list style. They are held together by force of shared menu title and general affinity with the concept of educational design but not much else. Where internal ordering occurs, there is no single dominant approach. Nor is the ordering complete in any instance. The contrast is not between order and disorder, but between partial ordering among sub-categories and none at all.

The collective structure of the educational design sub-categories emerges from their patterns of recurrence across the selection menus of the various galleries. The pattern can be mapped by noting wherever a particular sub-category or related term is used on more than one site, and the frequency of recurrence. The recurrent items together form a series of thematic clusters, each cluster comprising the group of related terms through which a particular theme is expressed. The frequency of recurrence of certain themes provides an overall picture of the common design focus of the seven collections as a whole.

Table 3: Top educational design themes – according to number of galleries where each appears

Educational design theme	Number of galleries
Problem-based learning	● ● ● ● ● ●
Case-based learning	● ● ● ● ●
Simulation-based learning	● ● ● ● ●
Collaborative learning	● ● ● ● ●
Project-based learning	● ● ● ●
Research-based learning	● ● ● ●
Experiential learning	● ● ● ●
Concept development	● ● ● ●
Self-directed learning	● ● ● ●
Lecture-based learning	● ● ● ●
Role play-based learning	● ● ●
Field-based learning	● ●

The distribution enables identification of the top design types as a broad group but is not a reliable guide to differences within the group. The relative position of the various elements within the core group is not clear. The problem is not just similar levels of recurrence across the core themes, but that many of the themes are closely related. There is no agreement about where the dividing lines run. Case-based and problem-based learning can be treated as a single category in one gallery while another puts case and project together. To avoid being entangled in definitional arguments, the themes above have been compiled on a conservative basis, treating terms as part of the same theme only where the semantic connection is clear and obvious, such as 'collaborative' and 'cooperative learning'. With a different approach, the concentration of the field could be rendered even more dramatic than currently appears. What does not alter is the existence of the concentration itself. This is not an accidental distribution. Underneath appearances of diversity and originality at individual level, there is a strong sense of convergence among the galleries as a whole.

Determining the precise direction of the convergence between gallery classification systems is a tricky business. One approach is to trust the galleries and to see the concentration of interest around certain types as a natural product of their common wisdom and experience in real design practice. The importance given to the core group of design types would reflect nothing more than their actual importance in the real educational world. However, there are too many distorting tendencies at work for gallery classification systems to be considered in 'reflection of reality' terms. Three distorting tendencies are readily identified from the evidence of the distribution pattern: (1) arbitrary exclusion (2) arbitrary differentiation and (3) arbitrary grouping.

Arbitrary exclusion

A clear instance where gallery classification systems fail in their reflection of real world educational needs is their failure to include workplace learning as a design theme of comparable significance to those prominently mentioned. Workplace learning appears in a single gallery, DPT, where it is just one among

over 200 menu items. The omission of workplace learning is problematic not simply because the omission is inconsistent with the important role of workplace learning in university professional studies but because it is equally inconsistent with the espoused educational values of the design types most frequently featured in the seven ED galleries. The educational design types at the centre of attention across the seven galleries are in most cases types based in the concept of learning through authentic experience: problem based learning, project based learning, experiential learning, simulation role play etc. The omission of workplace based learning might possibly be rationalised by arguing that workplace learning is subsumed in these other authentic learning types, but this is a weak excuse when workplace based learning is the most authentically situated of any. When the distinction between workplace based learning and various ways of bringing 'authentic experience' into academic learning is treated as less significant than the fine-grained distinctions separating the latter, the concept of authenticity itself falls into question.

Arbitrary differentiation

Case based learning, project based learning, simulation and role play based learning merge and separate from one gallery and even within the same gallery. On the DS site, case based and problem based learning are identified as a single type of 'instructional strategy' on one menu and as alternative 'teaching models' on another. It might be concluded that gallery builders need to be more careful with their language and provide better explanations of what they use. However, this would be to miss the point. The key point is that the galleries have failed as a group to reach agreement on how to divide up their preferred range of educational design models. The problem is not that one or other gallery is loose in its language but that the terms themselves are inherently slippery (Wozniak, Mahony, Everingham, Poulos & Reid, 2005). The substantial effort invested by various galleries in explaining and justifying their category divisions count for little when there is no certainty for any gallery on which divisions are actually the important ones to make.

Arbitrary grouping

The basic structural rule of the ED gallery taxonomies seems to be one of perpetual reinvention. Nothing is repeated. No two taxonomies are alike. Where taxonomical structures are borrowed from other sources, the process is accompanied by substantial unexplained modifications. The LD site takes four categories from Oliver et al.'s (2002) 'Description of Learning Designs' and adds a completely unrelated fifth item. DELTA's taxonomy of 'Learning Activities by Strategy' reworks Bloom's taxonomy (Bloom, Kratwohl, & Masia, 1964) in a minimalist format comprising two cognitive levels, the whole affective domain and a non-specific category covering skills in general. Even DPT, the most systematic of the group, has its eccentricities. DPT borrows its taxonomy of 'approaches to teaching' from the taxonomy of theoretical perspectives of Mayes & De Freitas (2004) but with some unannounced reshuffling of contents in the process, and also some hardening of boundaries that were not originally intended to be categorical divisions between learning and teaching approaches (Mayes & De Freitas, 2004: 10).

Behind the arbitrary structures of the educational gallery menus, one positive overall pattern can be found. The primary clue to this pattern is the way that downgrading of workplace based learning combines with simultaneous promotion of other forms of learning through experience that work at a lower level of authenticity. Ip & Naidu (2001) make a distinction between 'edited' forms of experience-based learning where the experience is constructed for the learner and more 'authentic' forms where the learner's own lived experience is the focus of the learning activity. The overall tendency of the gallery menus as a whole is one which puts learning by practical experience in edited forms ahead of more direct experience based learning. The situation has echoes of Baudrillard's 'hypereality' (1981), where simulations become the only form of reality recognised. The emphasis on more 'packaged' forms of learning by experience could equally be interpreted in terms of an economic climate favouring commodified forms of education generally. A more prosaic interpretation would be that the attention given to learning by experience in a variety of packaged models fits conveniently with the interests and perspective of the professional package builders. The educational design classification systems would be understood as having succumbed to a kind of 'producer capture', where the customer choice is decided by what producers are offering rather than customer choice determining the product range. Whatever the underlying motives, the outcome in the ED galleries is poor representation of user perspective in menu classifications. While the web conventionally functions as a medium driven by user choice (Krug, 2000), the situation appears otherwise in the ED gallery menus systems. Users are confronted with imposed

choices of arbitrary construction and no clear relationship with practical learning or teaching needs. This raises the question of what exactly the user is supposed to be doing in the ED galleries, if not making user driven choices as web users normally would. The question must be answered in the framework of the overall purpose and strategy of the ED galleries as seen from the homepage.

View from the top: How do the galleries identify themselves?

The first problem raised by gallery homepages is one already encountered at content page level: the naming of the subject at hand. There is no consistent rendering of the two key conceptual elements: 'educational design' or its 'examples'. Only one site (LD) has a title that identifies it as some sort of educational design collection. Only two sites actually have a specific name for the educational design business. In neither case is it 'educational design'. Instead, 'instructional design' (DS) and 'learning design' (LD) are used. More often the idea of educational design is introduced by nothing more than indirect allusion, such as: 'the selection of appropriate media to accomplish specific learning objectives' (UMUC). The presence of design examples is flagged at homepage level on four of seven sites and accurately signposted in three cases only (COTC, DELTA, LD).

In terms of underlying purpose and target audience, there seems to be lot more common ground. The main problem here is teasing out the details which are not always spelt out. The intended audience is university teaching staff, specifically named on six out of seven sites and implicitly understood on the seventh (DELTA). The overall purpose is clearly stated on LD, UMUC and DP sites and in background literature for DELTA and COTC (Holt et al., 2005; Brack et al., 2005). Similar aims are implicit in the directions that DS and TwT sites provide to teaching staff users. The main elements are:

- Professional development for teaching staff
- Using flexible delivery
- Addressing pedagogical challenges and opportunities raised by new ICTs
- Viewing exemplary models of ICTs in teaching use

The critical question here is the precise meaning of the word 'view', particularly in the context of a process that is supposed to result in learning, whether that of students or teaching staff. Provision of learning media may be a starting point for learning, but it is not the whole story. Explanations available on the sites themselves tend to be variations on the concept of 'view' without much further detail. Users are told to 'explore', to 'engage' and to 'access'. On the DPT site, there are full instructions for constructing new designs but little on what might be done with the examples already there. UMUC gives the clearest viewing directions, with an online course-book style layout that leads the viewer through the whole site from start to finish. A comprehensive viewing of similar extent is required in the other six sites in order to reach a meaningful overview, due to the opacity of the menus offered. The only way to get an idea of what the menu range represents is by immersion in the content beneath. Every gallery operates in course book style, where careful study of the whole is necessary for understanding of the parts. By making the process explicit, UMUC provides its viewers with the easiest navigation of the seven. Here, the viewer knows where to start and where to end.

The galleries have the outward trappings of twenty-first century web design but the language and conceptual architecture belong to another world altogether. Their prototype is to be found in a Victorian invention: the instructive collection of exemplary works of art, as seen in Ruskin's Teaching Collection (Hewison, 1984: 9-35). Shared features include: content based on works of exemplary quality, sorting and cataloguing based on didactic purpose, the intention that the collection function on its own as an instructive experience, not just an adjunct to organised classes, and finally, the need for viewers to work through the collection in a sustained, studious manner, as would happen in the regular classroom, in order to realise the intended benefit. The ED galleries are basically about improving teaching practice by exposing teachers to 'good practice' exemplars using a tried and tested model of mass instruction.

The casting of teachers in the role of instructional target implies the presence of a second type of agent, equally important for the galleries' instructional mission: an instructional source. Where does the instructional message come from? Who is really teaching the teachers here? Ideally, we should be able to say that the galleries speak on behalf of the collective experience and expertise of the educational design

discipline. If there were such thing as an educational design discipline or a coherent body of disciplinary knowledge integrating the collective experience of design practice, galleries of exemplary educational design work would be their natural home. On the evidence of current ED galleries, however, educational design is in a very early developmental phase as a discipline and unable to articulate any coherent identity of its own. Collective disciplinary knowledge is certainly not the main source of authority in this case. What else could it be?

The main authority evident on gallery homepages is that of their sponsoring universities and government bodies. Here is the common core of instructional identity in the seven ED galleries, the easy self-assurance of agencies well-practiced in telling teachers what to do. Being in confident command of their local situation, however, is not the same as being ready to state their business in clear, precise terms for a global web audience. This requires another kind of boldness altogether. The authorial voice of the ED galleries speaks from somewhere on the boundary between teaching administration and frontline teachers but without any indication of precise location in relation to either. The craft of educational design and its practitioners remain shadowy outlines behind the gallery exhibits, glimpsed from the web interface as if 'through a glass darkly', like lurkers in their own digital display.

Conclusion: Try harder? Try what?

The original aim in undertaking this paper was finding a better framework for identifying educational problems and solutions: a taxonomy of something that has been called 'educational design' for want of a better term. An obstacle to this goal has emerged in the naming strategies of existing classification schema. These tend to favour division and hierarchy between roles of teaching and educational design rather than providing language of common understanding. The essential requirement for getting around this obstacle is to find ways of naming that make shared sense. This takes us back to the original starting point, the search for a better taxonomy.

Finding an actual working taxonomy is still a distant goal. However, the requirements for getting there have become a bit clearer. The main requirement is foundation in teaching context. The categories need to make sense in terms of the curriculum structures that teachers work with, not just in terms of pedagogical ideals. The second requirement is a focus on elements of the teaching curriculum that are neglected or overlooked, as workplace learning appears to be in current ED galleries. The deepest structural divisions are the ones taken for granted. Third, the process of taxonomy development needs to start from a position of neutrality in regard to the question of what may or may not constitute an example of good teaching practice. Taxonomy developers need to be wary of the trap seen in the ED galleries where focus on a limited range of 'good practice' examples leads to classification systems confined solely to the cases represented by those examples, which in turn limits the possibility finding a broader range of examples.

Broader implications for pedagogical theory and educational philosophy must be left for further investigation. The question of whether the current tools of educational theory are up to the task of ED gallery construction, or whether some sort of rethinking of educational theory itself is required, is outside the scope of this paper. In the meantime, the existing ED galleries stand as leading models of their kind and are entitled to acknowledgement of their pioneering efforts. Those who believe that a better architecture exists in theory now have some benchmarks against which to test their ideas in practice.

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