Chapter 17: A Comparison of Issues in Reuse of Resources in Schools and Colleges

Allison Littlejohn, Insung Jung and Liz Broumley

Commentary by Terry Anderson

Professor and Canada Research Chair in Distance Education
Athabasca University
320 10030 107 St.
Edmonton, AB Canada
T5J 3E4
terrya@athabascau.ca

This chapter forces us to confront an issue that has long haunted education technology focused reformers ? what if we build it and nobody comes? Will learning objects end up alongside programmed learning machines, educational television, and video conferencing as technologies that were cool in their day, but never had anywhere near the impact on formal education that was predicted by early proponents. Perhaps the best way to ensure valued and valuable use of any technology is to ensure that lessons learned from early implementations are recycled back into design of subsequent products. Fortunately, we are yet in early times in the development of objects and thus the potential for both incremental and substantive change to the way we design and use these latest techniques is great. As importantly, the design and construction processes related to educational objects use and adoption are much different than the monolithic models of earlier technologies. Educational objects promise a flexibility of design and implementation that allows for and even demands creative input from both professional designers and practicing teachers. Thus, articles such as this one by Littlejohn, Jung and Broumley that not only document issues and concerns of early adopters but further provide new design models and heuristics are especially valuable.

The article presents the results of two geographically and educational diverse case studies that focus on adoption and use of learning objects. The first reviews an interview-based study of 283

Korean K-12 teachers who had access to a national repository of objects. The second case study focuses on the experiences of tutors developing and delivering educational modules for a new distributed postsecondary network located in Northern Scotland. The article provides brief summaries of these studies and a link to the full Scottish study, but none to the Korean one. As in any good multiple case study the authors help us to compare and contrast the two cases through a table that builds on the four categories introduced by Campbell (Chapter 3 in the text) of cultural, educational interoperability and technological. The cultural variables that are found in both studies are familiar and in most cases similar ? both samples have issues related to familiarity and access to the technology, lack of time, and concerns about motivation and reward related to adoption of any new technology. Cultural differences, though, are significant. The Korean K12 teachers are teaching to a standardized national curriculum. In contrast, the Scottish tutors, like most higher education teachers, are individually developing and delivering their own localized curricula. Finally, the context of the Korean teachers includes a large scale federally sponsored and mandated repository of curriculum that has been established for years. The Scottish tutors are forced to create their own content and tag and store it for reusability. These tutors are motivated only by a sense that reuse is a good thing and may save them some time in subsequent revisions. Oddly, the authors don't look at the larger cultural dimensions related to teaching and learning between the two samples that anthropological scholars such as Geert Hofstede (1991; 1986) have identified. For example it would be interesting to determine if any Hofstede's five cultural dimensions ? of individualism, power, uncertainty avoidance, achievement or long term orientation ? are directly related to learning object creation or adoption.

Educational, interoperability and technological issues are remarkably similar despite the fact that Korean teachers are using educational objects in classroom situations, while their Scottish teachers are developing distance-learning content. Not surprisingly, higher education teachers focus on content development, while K-12 teachers leave content creation to texts and other commercial content objects and focus on acquiring and using objects that support learning activities.

What the two cases provide for us is a snap shot of object use in the real world. The short summary statistics and the expansion in the original articles help us focus on the adoption issues that are most likely credible and useful to teachers making real adoption and use decisions. The authors speculate that the standardized curriculum of the K12 context is likely to lead to more extensive and rapid adoption of objects since the larger economy of scale that determines the market for object production and use is likely to lead to higher quality products. However, this view sees learning objects as being static entities much like textbooks that demand large press runs to amortize production costs. I like to think of objects as being more malleable than this and gaining their economy of scale by their capacity to easily be contextualized or morphed to meet a variety of curricula needs. In this latter view, objects may in fact be more attractive in areas in which culture demands local accommodation and development of curricula.

As a good chapter should, the authors next take us from the data to the theoretical by presenting a model or framework for "module design and evaluation". The module combines Biggs' (1999) design that attempts to constructively align learning objectives, assessment tasks, and teaching methods and throws in Mayes' (2002) categorization of courseware at three levels: content, activities, and discussion. Unfortunately, the single example of the framework provided is

focused on the "design of online courseware" itself. This confusing habit by which educational technology researchers provide examples from the study of educational technology itself does nothing to help the reader generalize to more diverse educational contexts. Surely educational technology researchers will eventually discover that there is a world of education beyond the study of educational technology itself!

Notwithstanding this concern with the model's presentation is a deeper concern that the framework model lacks sufficient specificity to actually guide learning object use and integration. The framework helps us get our heads around the fact that learning objects can meet courseware needs that go beyond the familiar text model of content that leads to discussion activities. However, it is less effective in providing any guidelines as to how learning outcomes, assessment, teaching and evaluation should be aligned. It certainly provides a nice reminder to see these four factors sitting side by side in the model, but there is little guidance as to how learning objects fit into the framework. This is especially challenging when current confusion in the field between so called "knowledge objects" which are devoid of outcomes and assessment or learning activity are confounded with other conceptions of learning objects at generally larger levels of granularity where all of these activities are referred to as components of the learning objects. As the authors suggest, perhaps more formal description of these contextual components of a learning object provided through the IMS learning design specification or other versions of an educational modelling language will help solve this problem. So for now, the framework provided only tells developers to remember these important components of effective learning contexts but gives us little more than a tabular heuristic to guide the process. The framework is a model and models are often the first and necessary step in theory formation. They identify the important variables ? but further work is needed to expose the theoretical relationships between these variables.

To conclude there is much to be learned from the study of real applications of learning objects in authentic use and development applications. These chapter reviews two such studies and in the process helps to identify factors that will likely both exacerbate and promote re-usable learning object adoption. The framework provided is useful for reminding us that education is multi-faceted and multi-staged and that learning objects need to be integrated within culturally defined learning sequences. Thus, diverse needs often warp around instruction, support, assessment, and encouragement and each can be critical to effective use and integration.

References

Biggs, J.B. (1999). *Teaching for quality learning at university: What the student does*. Buckingham, UK: Society for Research into Higher Education: Open University Press.

Mayes, J. (2002). Pedagogy, lifelong learning and ICT. *Electronic Journal of Instructional Science and Technology, 5*(1) Retrieved Feb. 15, 2003 from the WWW at http://www.ipm.ucl.ac.be/ChaireIBM/Mayes.pdf