

# **A Debate for the Internationality of Learning Materials**

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## **ABSTRACT**

In practice we promote re-usability, flexibility, and the sharing of resources. How do our current practices actually support these desired outcomes within an international context? Observation within a discipline may show that learning materials are autonomous by design. Why? The argument presented in this paper is that academics are subject to their own cultural understandings and rules which lead to questioning the usability of learning materials in the first place. To afford usability of learning materials it is proposed that a collaborative multi-cultural approach be explored for their development.

## **INTRODUCTION**

The past decade has seen a proliferation in the development of learning resources known as learning objects. The literature reveals a trend in learning object design that focuses on key concepts such as re-usability, transparency, and pedagogy. This paper identifies a potential short coming in the design practices published to date from the available extant materials and research. The focus here therefore will be on initiating a debate for *usability* within the mindset of internationality before considering re-usability and transparency.

## **DISCUSSION**

To begin with, a short history on the development practices of learning objects is offered to contextualise the grounds upon which the above debate has been instantiated. The literature (Zielinski 2000; Muzio, Heins; & Mundell 2001; Boyle 2002; Calverley 2002; McNaught, Burd, Whithear, Prescott & Browning 2002; Robson 2002; Agostinho, Bennett, Lockyer & Harper 2003; Gosper, Woo, Kerr, Rich, Gibbs & Hand 2003; Moore & Wallace 2003; Paris 2003) has provided us with a rich history of the debates for re-usability of learning objects, transparency, and pedagogical requirements.

Re-usability has been identified as the fundamental principle behind learning object development. Briefly, the principle of re-usability insists that the produced material be a complete piece of knowledge at the atomic level on which to build upon in the learning environment. A learning object therefore consists of a learning objective that may be supported with readings, activity based learning, a lecture, self assessment questions and so on. Re-usability was said to be likely if the learning object could stand on its own.

### **Why the push for re-usability?**

Downes (2001) referred to the economic viability of resource sharing and reported that it made no economic sense to have duplicated versions of similar learning materials. (A quick example of a duplicated resource would be learning materials based on report writing and referencing). In addition to the economics for an organisation is the element of time saving for an academic. Producing learning materials that are able to be re-used in several units of study does have merit. The issue of finding available learning materials that were suitable

initiated the discussion for transparency (Konstantopoulos, Darzentas, Koutsabasis, Spyrou, & Darzentas, 2001; Downes, Shata, Lin, & Jamlan, 2001; and McNaught, Burd, Whithear, Prescott, & Browning 2002).

The debate for transparency is one which is concerned with the ability to locate and identify appropriate learning objects for re-use. The on-going discourse has seen developments that have tried to address these issues as the growth of available learning objects has escalated. Coupled with this is the nature of interpretation placed around what is actually a learning object. This can be difficult within a single discipline to answer unequivocally (as recorded by Moore and Wallace 2003) let alone across cultural borders. As such there are many different interpretations on the structure of a learning object and what it looks like. There are also several interpretations about the required metadata kept about learning objects.

Early debates regarding what metadata to record abounded. For the development of learning objects Jacobson (2002) referred specifically to 'objective data' which included types such as file sizes and file types, and built on Muzio et al's (2001) suggested use of key words by recording them under the heading of 'subjective data'. Oakes and Regarajan (2002) added depth to Jacobson's assertion for a description by unpacking this further into elements of learning objectives, author, language, version number, creation date of content. Additional extant research that focused around metadata included the Dublin Core metadata element set which provided a detailed description of elements to be included in the learning object to ensure re-use and transparency. These elements include title, creator, subject, description, publisher, contributor, date, type, format, identifier source, language, relation, coverage, and rights. The metadata debate was further compounded when the distinction between technology metadata and pedagogical metadata was drawn. Wallace, Moore, and O'Sullivan (2004, n.p.) argued for "the inclusion of three levels of metadata; objective, subjective, and pedagogical" as did Paris (2003) a year earlier.

Moving along from the earlier years of re-usable learning material debates and enquiry, it can be seen how the focus of multi-culturalism, and internationality had possibly been neglected.

As much work has been undertaken in understanding factors of metadata requirements for objective, subjective, and even pedagogical issues, little has focused on internationalisation awareness. A brief semiotic explanation highlights this situation. Of the current metadata standards that can be evidenced in SCORM, AGLS, Dublin Core, IMS, Intelink, LOM Working Group, the semantic elements are encapsulated within the objective metadata grouping; the pragmatic elements are found in the pedagogical metadata grouping; and the language, file types and structural elements are located in the syntactic metadata grouping. It appears that a missing semiotic in design and development has been the *social* metadata grouping. The social element is the continued focus for this paper.

### **Why is the social semiotic of interest to us?**

In parallel to the vein of the core literature focused on in the above debates are the gems that were suggestive of an additional facet to the design equation for learning objects (materials) – the social. Early arguments provided by Lim (2002) for the need for collaborative creation of learning objects and the need to reassess curriculum and mode of assessment across schools; and Poupas and Forte (2003) who highlighted the need for collaborative teaching materials using national and regional languages; and Padron, Torres, and Dodero (2004) whose study concluded the need for the establishment of communities of practice for individual learning object design and development had appeared to be left on the tailings heap in the past years. It is encouraging to note that the debate is beginning to focus on the social again. A recent publication (Busetti, Dettori, Forcheri & Ierardi 2006) has picked up the debate for collaborative approaches to Learning Object design and development. But still a perceived short coming is the lack of explicitly stating the multi-cultural dimension.

The social semiotic, for the purposes here, refers to the laws, rules, taboos, accepted standards and behaviours within a culture (Chandler, 2001). Earlier it was suggested that learning materials are autonomous by design. This perceived attribute of learning materials implies that they are developed by the academic for their intended purpose and understandings only. As such the arguments for re-usability in the literature would appear to put the cart before the horse. Before we can consider re-usability of learning materials across units of study, disciplines, schools, or universities, we must be able to produce learning materials that are usable in their first instance. The conclusion here then, is the *practiced* definition for a usable learning object must span further than the authoring academic's unit/s of study if we are to ever build bridges that will allow for re-usability within a multi-cultural framework. Therefore the argument for the inclusion of the social metadata is now presented.

Exploring a collaborative multi-cultural approach for the development of learning materials provides fuel for the above argument. If we wish to explore a means of building bridges for collaboration and multi-culturalism in our teaching and learning practices and experiences, then why not start at the atomic level, ie with our learning materials development? As a starting point, reference is made to two specific earlier publications by Calway (1995) and Stamper (1995) focusing on a 'semiotic approach for object abstraction'. Calway (1995, p.242) proposed a definition for the concept of a 'viewer' from the object-oriented paradigm which in part, simply states "where signification is something (in this case objects) that stands to someone (viewer) for something in some respect or capacity". Stamper (1995, p. 248) provides a further explanation that provides a solid link to the social sign. It is proposed here that the social element of learning materials should be a collaborative multi-cultural effort.

Learning materials such as learning objects should be developed with an intent to actively include multi-cultural views. These views could include country relevant case studies eg buying a car or getting a driver's licence in Australia is a very different process than buying a car or getting a driver's licence in China. Why? Because there are different rules for age limits, zones a person is permitted to drive in, some countries also have a space issue, so a person cannot buy a car unless they can show they have somewhere to keep it when not driving, and this also extends to that they can show where they will drive it to, that they have a space to park it. Tax laws in countries differ and so on. These different socially imposed standards, within the simple case studies above, highlight the need for our students to experience multi-cultural views.

## CONCLUSION

We need to develop collaborative partnerships where synergies are most likely. It is proposed here that this is at the atomic level of learning materials development. It is recognised that this will benefit our students, both domestic and international, by offering them multiple cultural perspectives embedded in the learning pedagogy and materials. If we can start spanning the cultural divide with small bridges, we will encourage the building of relationships between our staff and our students.

## REFERENCES

Agostinho S., Bennett S., Lockyer L., & Harper B. (2003), *Integrating Learning Objects with Learning Designs*. Paper presented at the Interact Integrate Impact – 20<sup>th</sup> Annual Conference of Ascilite, Adelaide, Australia – 7-10 December 2002.

Boyle T. (2002), *Design Principles for Authoring Dynamic, Reusable Learning Objects*. Paper presented at the Winds of Change in the sea of learning: Charting the course of Digital Education, Auckland, New Zealand – 8-11 December 2002.

Busetti, E., Dettori, G., Forcheri P., & Ierardi, MG. (2006), *The role of LOs in building teachers communities of learning*, Formatex Center, Retrieved August 13, 2007 from web site <http://www.formatex.org/micte2006/pdf/1601-1605.pdf>

Calverley, G. (2002). *Distributed Learning Project Guide: Creating Reusable Materials*. Retrieved July 27, 2007 from <http://www.cetis.ac.uk/groups/20010809144711/FR20020618103339>.

Calway, BA. (1995) *Semiotic approach for object abstraction*, in Information System Concepts towards a consolidation of views, Eds. Falkenberg, ED., Hesse, W., and Olive, A. Chapman & Hall, London.

Chandler, D. (2001) *Semiotics for Beginners: Codes*, University of Wales, Retrieved August 29 2007 from web site <http://www.aber.ac.uk/media/Documents/S4B/sem08.html>

Downes, S. (2001). Learning Objects. Retrieved May 31, 2003 from International Review of Research in Open and Distance Learning website <http://www.irrodl.org/content/v2.1/downes.html>

Downes, S., Shata, O., Lin, F., & Jamlan, M., (2001) Learning Objects: Resources for Distance Education Worldwide, *International Review of Research in Open and Distance Learning, Vol. 2, Issue 1 np*. Retrieved August 3, 2007, from Academic Search Premier, EBSCOhost.

Gosper, M., Woo, K., Kerr, S., Rich, D., Gibbs, D., & Hand, T. (2003), *The Selection and Use of Learning Objects for Teaching: User Perspectives*, Interact Integrate Impact – 20<sup>th</sup> Annual Conference of ASCILITE, Adelaide, Australia – 7-10 December 2003, ASCILITE

Jacobsen, P. (2002), LMS vs. LCMS. *e-learning, vol.3, no. 6*, p54, Retrieved May 13, 2003 from Computer Source, EBSCOhost.

Konstantopoulos, M., Darzentas, J.S., Koutsabasis, P., Spyrou, T. & Darzentas, J. (2001), Towards Integration of Learning Objects Metadata and Learner Profiles: lessons learnt from GESTALT, *Interactive Learning Environments, Vol. 9, Issue 3, pp. 231-254* Retrieved August 30, 2007, from Academic Search Premier, EBSCOhost.

Lim, C. (2002), *Trends in Online Learning and Their Implications for Schools' Educational Technology*, Vol 42 Issue 6, pp. 43-48 Retrieved ---- from ----

McNaught, C., Burd, A., Whithear, K., Prescott, J. & Browning, G. (2002), *It Takes more than Metadata and Stories of Success: understanding barriers to reuse of computer-facilitated learning resources*, Paper presented at the Winds of Change in the sea of learning: Charting the course of Digital Education, Auckland, New Zealand – 8-11 December 2002.

Moore C., & Wallace I. (2003). *Encapsulating Learning Objects for Learning Flexibility: A Case Study*. Paper presented at the Sustaining Quality Learning Environments, Canberra, Australia – 28 September - 1 October 2003, ODLAA

Muzio, J., Heins, T., & Mundell, R. (2001). Experiences with Reusable eLearning Objects: From Theory to Practice. *The Internet and Higher Education, vol.5 no.1*, pp.21-24. Retrieved July 27, 2007 from Computer Source, SFX.

Oakes, K., & Regarajan, R. (2002). An objective view of learning objects. *T+D, May 2002, Vol.56 Issue 5, p.103, 3p, 1c*. Retrieved August 3, 2007, from Academic Search Premier, EBSCOhost.

Padron, CL., Torres, J., Dodero, JM., Diaz, P., & Aedo, I. (2004), *Learning Web Services Comproion and Learner Communities Support for the Deployment of Complex Learning Processes*, Paper presented at the IEEE International Conference on Advanced Learning Technologies 2004, ICALT

Paris M. (2003). *Reuse in Practice: Learning Objects and Software Development*. Paper presented at the Interact Integrate Impact – 20<sup>th</sup> Annual Conference of Ascilite, Adelaide, Australia – 7-10 December 2003.

Poupa, C., & Forte, E. (2003), *Collaborative Teaching with Learning Objects in an International, Non-Profit Context: the example of the Ariadne Community*, Retrieved August 13, 2007, from ERIC, Educational Media International

Robson, R. (2002), *Reusable learning objects*' E-Learning Vol. 3 Issue 9 pp. 18-19

Stamper, RK. (1995), *Comments on 'Semiotic approach for object abstraction' by B.A. Calway*, in *Information System Concepts towards a consolidation of views*, Eds. Falkenberg, ED., Hesse, W., and Olive, A. Chapman & Hall, London.

Wallace, I., Moore, C., & O'Sullivan, S. (2004), *Instantiating Learning Objects for Transparency and Reusability*. Abstract presented at the 3<sup>rd</sup> Pan-Commonwealth Forum on Open Learning, Building Learning Communities for Our Millennium: Reaching Wider Audiences through Innovative Approaches, Dunedin, New Zealand, 4-8 July, 2004

Zielinski, D. (2000), *Objects of Desire*', Training Vol 37, Issue 9, pp. 126-134,