

A PEER-REVIEWED FORUM FOR THE PUBLICATION OF HIGH QUALITY I.T. TEACHING RESOURCES

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ABSTRACT

Commitment to the development of IT-based teaching materials continues to grow rapidly. Yet, despite the efforts of CAUT, CUTSD, ASCILITE, HERDSA and other organisations, there remains substantial loss of public monies in supporting developments which fail to build on earlier work. The fault lies not entirely with developers, but in the lack of a public forum where examples of high quality IT teaching materials can be accessed. Though many authors publish their materials on the Internet, the WWW provides no quality control nor quality indicators.

This paper proposes establishment of a forum to publish high quality, peer-reviewed, IT-based materials that showcase educational best practice in discipline context.

Materials suitable for publication, subject to acceptance by reviewers, would be the IT product (or a subset), together with a descriptive paper setting out the aims, rationale, educational issues, methods, problems and solutions, and operational instructions. The descriptive paper would be a substantial component of the published package, but the learning materials must also be provided.

For authors this would provide:

- *a central recognised outlet for dissemination of quality teaching materials;*
- *appropriate academic recognition through registration of citations;*
- *a contribution to the research quantum;*
- *protection of copyright and intellectual property; and*
- *exposure, leading to potential revenue.*

For users it would provide:

- *a growing library of high-quality peer-reviewed teaching resources (following purchase of site or network licences);*
- *resources for learning from others, to reduce duplication and re-invention;*
- *resources providing practical, discipline-related ideas and examples; and*
- *starting points for collaboration to extend capabilities and functionalities.*

This contribution is intended to highlight the issues associated with such a proposal, and to indicate possible ways forward.

KEY WORDS

IT-Teaching, teaching materials, publishing, academic recognition, copyright, intellectual property.

1. INTRODUCTION

For several years the *Committee for the Advancement of University Teaching* (CAUT) and now the *Committee for University Teaching and Staff Development* (CUTSD) have provided competitive funds to support initiatives and innovation in Australian tertiary education. In 1993, 63% of CAUT proposals were for projects focussed on learning assisted by computers (CUTSD, 1998a). In the 1998 round that proportion had risen to 75% (CUTSD, 1998a). Since CAUT/CUTSD allocated approximately \$3m in each year, if we include internal university funded initiatives, the investment in IT-based teaching developments has clearly been substantial.

Conditions of CUTSD grants require recipients to provide the secretariat with “copies of publications, CD-ROMs, videos etc. resulting from CUTSD funded programs” (CUTSD, 1998b, Section 8.2). Furthermore;

. . . grantees and institutions where grantees are employed must, on request, make available to any institution in receipt of an operating grant from DEETYA, any direct products, processes or techniques arising from a CUTSD-funded project on a cost-recovery basis (eg. cost of video-tape, photocopying, postage etc) for a period of three years after the submission of the final report . . .
(CUTSD, 1998b, Section 8.2)

While this is an entirely valid standpoint from the point of view of public accountability, it constitutes a rather inefficient means of dissemination, and a potentially disturbing position for authors.

Mechanisms associated with the grant approval process are designed to reduce duplication of effort, though inevitably overlaps in aims and intentions occur across different projects. The extent of the problem will grow as the numbers of developers grows. A reasonably good package for use in the teaching of chemistry-1, for example, may be followed by a separate development which pays much less heed to educational good practice and turns out to be far less useful. The difficulty is in ensuring continuous progression towards improved pedagogical practice without subsequently funding retrogressive work.

Often the difficulty arises because each individual project evolves from its own available cell of expertise, and fails to build on the lessons learnt from others. CAUT reports that “one factor which contributed considerably to the success of computer-based projects was prior experience of those implementing the initiative . . .” (CAUT, 1995). The hurdle then is in gaining the appropriate experience and understanding, without potential wastage of public funds.

There are additional concerns about motivation for the use of technologies (Fraser & Marshall, 1997) and the suggestion that projects are frequently driven by the technologies rather than appropriate pedagogy (Jacobson, 1994).

Many of the issues highlighted in the above could be overcome if high quality IT-based teaching materials were widely available to the community of educators in a public forum. Publication via the WWW fails in this regard. Firstly, it relies on the continuance of ‘clearing houses’ to maintain a register of available packages. Secondly, it relies on the author to maintain WWW access. But most importantly, there is no significant quality control process to vet what appears on the Web. Although there are acknowledged difficulties with the peer-review process in conventional publishing, there really is no satisfactory alternative for maintaining quality.

CUTSD acknowledge (S. Alexander, personal communication, 1998) the difficulties in disseminating IT products. Funding for the five clearing houses (UniServe Australia – Science, Humanities & Social Science, Engineering, Law and Health – UniServe 1998) has been discontinued. UniServe Science (<http://www.usyd.edu.au/su/SCH/welcome.html>) became a register of mostly commercial software teaching tools. UniServe Humanities & Social Science, or *ultiBASE* (<http://ultibase.rmit.edu.au/>), remains vigorous though dissemination of the IT-products themselves is not part of its mission (<http://ultibase.rmit.edu.au/About/about.html>).

As a consequence of the lack of appropriate fora, this paper argues for establishing a peer-reviewed conventional (though digital media based) forum for the publication of IT based teaching materials.

2. IMPLEMENTATION

It is envisaged that published articles should include the IT products (or a suitable subset) together with substantial documentation. The latter must describe the aims, rationale, educational issues, methods, problems and solutions; and also provide appropriate operational instructions.

To succeed, however, the publication must have the support of both the author and reader/user communities. In this regard, modelling on conventional practice, such a publication could provide:

for authors:

- a way to reduce duplication and re-invention (primarily advantaging public funds);
- a central recognised outlet for dissemination of quality teaching materials;
- appropriate academic recognition through registration of citations;
- a contributor to the research quantum;
- protection of copyright and intellectual property (discussed below); and
- wide exposure potentially leading to revenue generation (discussed below).

for readers/users:

- a central resource of high-quality peer-reviewed products designed to showcase best practice in the application of teaching and learning principles in electronic media;
- a resource of practical, discipline-related ideas and examples;
- resources for teaching (following purchase of site or networking licences); and
- starting points for collaboration to extend the capabilities and functionalities of published products.

Central issues for authors relate to copyright and protecting intellectual property. Those who have commercial plans for their products would be justifiably concerned that publication might compromise or jeopardise future revenue. But, authors in receipt of CUTSD funding might already be disturbed by requirements that DEETYA-funded institutions be given almost free access to their products (see earlier quote). CUTSD further state that "...ownership of intellectual property resides with the Commonwealth which may on request transfer copyright to the institution(s) . . ." (CUTSD, 1998b, Section 8.4).

Appropriate copyright protections, commonly applied by publishing houses, can control the use of materials by other individuals and institutions. Arrangements can be negotiated between copyright holders (whether these are authors, institutions, publishers and/or funding agencies would need to be resolved) and clients for the use of materials for example, under a franchising arrangement or through purchase of network licenses.

In cases where the materials themselves are not to be used but rather the inherent intellectual property, the conventional academic culture that recognises scholarship through citation rewards authors in the usual manner. Again, CUTSD states ". . . Institutions are encouraged to share information acquired as a result of funded projects with other Australian institutions." (CUTSD, 1998b, Section 8.4) The conventional academic publishing culture would seem to be an appropriate method for achieving this.

3. ARE THERE EXISTING PUBLICATION MODELS?

Many conventional refereed publications are appending digital material to their wares. However, there are presently very few digital publications that could be said to be 'electronic-first', that is, primarily concerned with digital information.

In the earth sciences I know of two. These are *Earth Interactions* (<http://EarthInteractions.org/eij-bin/PublicEntrance>), published by the American Geophysical Union and others, and *Marine Models Online* (*MMO* - <http://www.elsevier.nl/locate/mmo1>) published by Elsevier Science, for which I am founding editor. *Earth Interactions* publishes papers concerned with large-scale climatic modelling, for which the electronic medium offers capabilities to interrogate large data sets, rather than being served static author-chosen representations. *MMO* has a different philosophy.

Many scientists develop their own numerical simulation tools that they use to represent environmental processes. Commonly the models are used to investigate responses to specific scenarios – results are obtained, written up and published. It is unfortunately rather common that the author may shift focus, and though a number of publications may have come from the work, the model is discarded (since making it available through the WWW carries maintenance and support penalties). The loss to the community is twofold: firstly, the model provides the means for verifying published results, with the advantage of being able to modify inputs slightly or test model sensitivities; secondly, the model may remain valid under scenarios not tested or envisaged by the author. Its primary value lies in its provision of capabilities and, in the right hands, the model might be more valuable than its published results. *Marine Models Online* aims to fill this gap by providing an outlet for the author, appropriately recognising the scholarship, and making these tools available to the community.

In setting up *MMO* there were many issues relating to copyright and intellectual property that needed to be resolved. Essentially we have tried to adopt a standpoint which is as close to the digital equivalent of conventional practice as possible, that is, subscription gives the subscriber (which may be an institution) the equivalent of a single user license. Site or network licenses must be negotiated with Elsevier and the authors. Elsevier protects copyright on published items, including model code. Readers may write to the author for the equivalent of a reprint, and the author should be freely allowed to supply this. And so on.

One of the greatest difficulties of present day publishing is finding suitable referees willing to give sufficient time to assessing a submission. The editorial board had considerable concerns about finding referees who would be willing to do this with digital software, as well as checking the substantial associated documentation accompanying the submission. Fortunately, in these early days, our pessimism seems unfounded, in fact one reviewer commented: “Thank you for the opportunity to review the contribution to *MMO* by . . . I must confess it has been the most enjoyable journal review I have ever done!”

In discussions about establishing an equivalent ‘electronic-first’ forum for publishing working IT-based teaching materials (and documentation), concerns about reviewers and drawing up review criteria should not be held up as reasons to stall the initiative. Clearly the review criteria must be carefully constructed, and should be based on questions such as the consistent application of sound principles in teaching and learning. Authors might also be invited to submit results of formative and summative evaluations. These are issues that the appropriate editorial board should draw up.

4. WHO SHOULD OVERSEE THE IMPLEMENTATION?

It seems appropriate that this should be a joint initiative overseen by the major stakeholders within the Australasian higher education community. A steering committee might be drawn from bodies such as CUTSD, the Australian Society for Computers in Learning in Tertiary Education (ASCILITE), the Higher Education Research & Development Society of Australasia (HERDSA), the Australian Society for Educational Technology (ASET) and others, to develop implementation guidelines. Ideally, an international editorial board of recognised achievers in the field should aim to ensure that the publication gains a reputation for quality.

Approaches to CUTSD (S. Alexander, personal communication, 1998) and HERDSA (Executive meeting, March 1998) gained enthusiastic support for the proposal. ASCILITE is yet to respond. The only concerns, expressed by both CUTSD and HERDSA related to the financial risks of publishing. If an existing publisher were willing to take on the financial risk, it would seem

that any potential financial gains to the societies should be sacrificed in the interests of enhancing dissemination, and grounding subsequent educational developments on a more solid, visible base.

5. CONCLUSIONS

This paper is intended to draw attention to a deficiency in the communication between successful IT-based teaching development teams, and the wider community of educators. It proposes the establishment of a peer-reviewed journal to showcase best practice, and to provide real examples of high quality electronic teaching resources. Though such a publication would need to position itself close to the leading edge of digital delivery, there are precedents to suggest that much of the advantages of conventional publishing practice can, and should be maintained. The intention here is to highlight some of the main issues and indicate those that must be resolved for the proposal to go ahead.

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