BRIEFING PAPER

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Cost-Effective Production of Learning Materials

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Introduction

Producing learning materials for primary delivery online is challenging. It requires a team of individual specialists with knowledge of interactive learning design, electronic media production, programming, web technologies and other technical expertise. However it doesn't need to be particularly expensive - if the production is done holistically, for all delivery media and environments, right from the start.

The key to this is **single source publishing** combined with the disciplines associated with investing in, and continuously managing, a **single master source** of learning materials. What does this mean?

Consider first the "organic" approach to distance learning. This approach follows a natural progression starting from traditional face to face learning and making tentative forays into distance learning. Typically it will start with word processor files of teaching material which have performed sterling service as handouts, case studies and test papers. These first of all require to be beefed up with the incorporation of features which, in the face to face learning environment, are usually delivered informally at lectures or tutorials. They then require to undergo a series of parallel transformations to render them suitable for both publication as printed text and as an online or electronically accessible resource.

By contrast, the single master source requires the work of transformation to be done only once, and thereafter the same original source material is available for publication in a range of media, formats and styles, all at minimal marginal cost. This is achieved by first of all converting the original material into a format known as XML – not an inexpensive exercise in itself, but if done well only has to be done once, forever. The benefit of using XML is that an XML document contains within it a very large amount of extra or "meta" information. This is information about the content which enables it to be deployed in different and more useful ways, for example to typeset a textbook or study guide, or to make the same information available online for students to browse and search. This facility yields two substantial benefits:

1. the cost of multi-media publication (an essential feature of distance learning today) is substantially reduced;

2. revisions to the source material need only be made in the single master source – they will automatically flow through to the various publication media.

This means you can spend the minimum amount of time needed to cherish the one single master source of your distance learning course, and see it automatically and rapidly reproduced in Postscript or PDF formats for your print department to use, and web format, ePUB or HTML for your virtual learning environment team to use.

Batch typesetting from an XML single master source can generate a 750 page text book or journal article in seconds – a professional production process that traditionally takes days. Another batch process can take the same course master file and generate 3500 HTML files to load into Blackboard, Canvas or Moodle, where you certainly wouldn't expect to read them in their entirety, but where you would expect to be able to retrieve them quickly in a particular teaching or learning context – perhaps in an assessment answer.

In short, this is about better quality learning materials for all your delivery media produced in a single solution, more quickly and at less cost.

Why is this of value to me?

Cost-benefit illustration

Let's look at a cost-benefit illustration. Take a 'typical' 200 page CPD module or study guide, comprising 68,000 words and 25 figures. The output requirements are postscript for print, and HTML for use online. PDF format for online use isn't an option because your authors want to embed hyperlinks into their answers that direct the students to exact locations in the module. Also, the students want to be able to search all of the course materials together – not just the unit text, and don't like using paper page formatted publications online.

Let's also assume it would take a traditional typesetter 6 days to produce the text and diagrams, and an in-house Web developer about 2 weeks (80 hours) to turn the 200 page unit into an online HTML web module that works for most common web browsers and your virtual learning environment.

Setting up style sheets for the materials – typesetter/designer @ £20/hour for equivalent of 1 day	£160
Typesetting @ £15 hour for equivalent of 6 days	£720
Implementing copyediting corrections @ £15/hour for equivalent of 2 days	£240
Graphic work at £15/figure	£375
Finalising document for print £15/hour for half day	£120
Preparing html materials from print output (10 days at £240/day)	£2,400
Total cost of traditional production approach (ex. VAT):	£4,015

Traditional production service illustration – print and web

The main advantage of the traditional approach is that it is cheaper if the only use is either for print or web – not both. The main disadvantage of it is that you now have separate html and print masters to maintain and update

Setting up programme template to institutional and departmental requirements	£100
XML tagging of 68,000 words (low complexity)	£1,020
Drawing and capturing graphics	£375
Implementing copyedit and proofread corrections as supplied	£476
Batch output material for delivery to print postscript	£500
Batch output material for web delivery	£500
Total cost of SSP service (ex. VAT):	£2,971

Single source production service illustration – print and web

The main advantage of the traditional approach is that it is cheaper if the only use is either for print or web – not both. The main disadvantage of it is that you now have separate html and print masters to maintain and update.

In this simple illustration the single source production approach saves **£1,044** or 26%. This saving largely comes from batch generating the web HTML materials for online use. It scales significantly, and when applied to a 12 module programme it becomes £12,528, and for a 48 module 3 year undergraduate programme it becomes £50,112.

The single source approach does need to be setup first, which means the real benefit only comes from the economy of scale for doing it for a whole programme. However, it does deliver additional benefits including having only one module master to:

- maintain and correct for each module;
- convert to support other media types and new learning environments;
- translate into another language;
- re-brand for use with a new business partner;
- add a more consistent provision of accessibility features;
- manage as a long-term, reusable, vendor-independent knowledge asset.

Conclusion

This briefing paper set out to illustrate the shortcomings of the traditional approach to the production of blended learning materials. Under the right conditions, single source publishing will provide a more cost-effective production capability, and a more flexible and better quality product for learning providers.

The most attractive cost benefits of single source publishing manifest themselves under the following conditions:

- planned use of more than one delivery medium;
- student numbers are such that the cost per head rivals other options such as textbook purchase and issue, or achieves economies of scale;
- materials that are well-structured, substantial and regularly updated;
- the organisation's strategy requires flexibility for partnerships, use of multiple virtual learning environments, and multiple marketing channels.

Single source publishing of blended learning materials isn't a solution for one individual wishing to take his or her presentation notes online. It is a solution for professionally developing a whole flexible learning programme, and scales rapidly to deliver massive cost savings and strategic benefits to the organisation.

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