

## INTRODUCTION

Digital Library Education (DLE) is assuming increasing importance and it is clear there is a pressing need from social trends and technology for educational developments in this new and fast moving area [1, 3]. Our latest review of progress in DLE and other recent studies [1, 2] pointed out that the number of library schools offering DL education is still growing. By the end of 2006 (based on modules titles shown on-line), 28% (5/18) of all universities with accredited programmes by CILIP (the Chartered Institute of Library and Information Professionals) in the UK and over 60% (34/56) of all library schools by ALA (American Library Association) in the USA and Canada are offering specific DL education. Around 40% of DLE is now either specialized independent or certificate programmes and courses, mainly in North America. However, there is currently no widely accepted formal curriculum framework for digital librarianship [2]. A major difficulty for academics in library and information science (LIS) is how to incorporate all of the DL technologies to their DLE, and no formal widely accepted framework of DLE has yet been established [1, 2, 3, 4]. It is difficult to compare full-scale independent programmes with other programmes that are more traditionally-based but which have modules on DLs [3, 4]. This and others recent studies [1, 2, 5] show there is a pressing need for educators to explore the specific question of what should be the standard framework for DLE in LIS to ensure that students and their employers – can be assured of having an adequate skill set to work confidently and productively in this area. DLE taught in a Computer Science environment benefits from an outline framework from CC2001 but no such framework has yet been promulgated from LIS based programmes [1, 2].

## METHODOLOGY & DATA COLLECTION

In a recent study [2, 5], Pomerantz et al., suggested a set of 10 core DL topics and 33 related topics that they referred to as 5S (structure, scenario, spatial, society and stream) for teaching DL. Taking this set as a starting point, we have up-dated our collection of on-line data, chosen a sample set (ten in total) of universities outside North America offering DLE in their LIS programmes. We collected the course structure (curriculum) and detailed syllabus for each module / paper, normalised this data to the suggested standard set of categories, and analysed the results. We present here some initial findings.

Detailed information about data collection and definitions can be found in reference [1].

Information on credit points, core and availability of details of module contents is more variable. Where it is available, a degree of interpretation has been required to match to the standard set proposed in [2]. Additionally, we have chosen to derive a measure of the coverage of the standard set by assigning a maximum 10% (Table 2) to each of the core topics and estimating how much each core topic is covered by comparing published module contents with the relevant topic sub-set. For example, core DL topics 2(Collection Management) consists of two related topics, (a-digitization; b-document and E-publishing Markup), then each sub-topic will be 5%. Loughborough University has also been included for comparison as a library school which, unlike the others shown, does not have an explicit focus on DL topics.

## RESULTS AND DISCUSSION

From Table 1, it is clear that the weight of DL-related taught modules in individual library school program varies widely from 13% (UM) to 63% (ST). Note that ST is offering a full independent programme on digital librarianship. However, from Table 2 we see that there is little difference between those offering full independent DL programmes (LM & ST) and those with two related modules on DLs (QUT & VUW) in respect to the percentage coverage. More detailed analysis of syllabuses shows that overall topic coverage in a single module can sometimes be very high but the depth of treatment would then be open to question. As can be seen, on the basis of comparison above Loughborough University's current LIM programme has around 50% content related to this proposed standard set of DL topics, with others ranging up to 85%. This indicates the clear difference between those schools which choose a particular DL focus, and those which do not, and also that for the former there is a fair degree of consensus about the DL topic coverage.

## DATA ANALYSIS

Table 1. DL -Related Modules in LIS Programmes

No	University	Type ##	Taught Credits ♦	DL Credits / Credits
1	City (UK)	2C	120	30 (25%)
2	LeedsM # (UK)**	2C	120	40 (33%)
3	LondonM# (UK)*	1C + 1E	120***	60 (50%)
4	Strathclyde (UK)*	4 C	120***	85 (63%)
5	UCL (UK)	1E	120	20 (17%)
6	Hong Kong (China)	1E	60	12 (20%)
7	NTU (Singapore)	1E	20***	4 (20%)
8	UM (Malaysia)	1E	24	3 (13%)
9	QUT (Australia)**	2 E	144***	24 (17%)
10	VUW (NZ)	1C + 1E	150***	30 (20%)

\* Independent programmes for students specialising in DL.  
 \*\* Certificate courses for students specialising in DL.  
 \*\*\* Detailed course syllabus is on line.  
 M# -- Metropolitan; ## Type of Module:  
 C— Core; E — Elective;  
 ♦ Taught Credits – Credits points (in total) required for the taught part of the studies (excludes project and dissertation);

Table 2 DL Topics Percentage Coverage

(See text, core topics and related topics adopted from reference [2])

No	Core Topics	Related Topics	LM*	ST*	VUW	QUT	LB*
1	Overview		10	10	10	10	
2	Collection Development	a-Digitization; b-Doc. & E-Publishing-mark-up	10	10	10	10	10
3	Digital Objects	a-Text resources; b-Multimedia; c-File documents transformation	10	10	6.7	6.7	6.7
4	Info/Knowledge Organisation	a-Metadata, harvesting, cataloguing; b-Ontology, classification, categorization; c-Vocabulary control, e.g. thesauri, terminologies; d-Bibliographic, bibliometrics, web-biographic.	10	10	10	7.5	10
5	Architecture (agents, mediators)	a-Interoperability; b-Sustainability; c-Interface design, usability assessment; d-Search engines & IR; e-Identifiers, handles, DOL, PURL; f-Info summarisation, visualization; g-Recommender system; h-Applications (e.g. Greenstone, Fedora, DSpace); i - Web-publishing e.g. wiki, RSS, Moodle etc.; j-Security	10	10	5	4	2
6	Space (Conceptual, geographic, 2/3D VR)	a-Storage; b-Repositories archives		5	5		
7	Services (searching, linking, browsing, annotating etc.)	a-Info. needs, relevance, evaluation; b-Search strategy, info seeking behavior, reference services; c-Routing, community, filtering; d-Sharing, Networking, Interfering.	10	10	8	8	6
8	Archiving, preservation, integrity			10	10	10	10
9	Project Management	a-DL development for specific domain; b-DL project examples; c-DL evaluation; d-Legal issues, e.g. copyright; e-Cost; Economic issues; f-Social issues; g-Future DLs	10	10	8.5	7	5.8
10	DLE & Research		10	10	10	10	
	Total coverage (%)	% of core & related topics (if 10% per core model)	~80	~85	~83	~73	~50

\* LM – London Metropolitan University (UK); ST— Strathclyde University (UK); LB—Loughborough University (UK)

## CONCLUSION

This limited study indicates that the DL module-based credit weighting for the sample set of library schools considered here varies from 13% to 63% (excluding project or dissertation work). Considering (where on-line information permits comparison) the coverage of a proposed standard set of DL topics and sub-topics, we find that this is at 80% or above for three of the schools studied.

## REFERENCES

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