



# JOURNAL OF Perspectives in Applied Academic Practice

## What is nature of distribution in the digital age?

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One interpretation could be increased engagement, collaboration and connectivity across geographically dispersed physical campuses. Another view could be knowledge transfer and partnerships with other organisations, such as community groups and the third sector, which can be facilitated by digital technology. A third interpretation could be the idea of the university employing more distributed technological solutions such as shared and/or cloud based services. Indeed all of these interpretations are perfectly plausible and reflect how many universities are actually operating today. Learning and teaching should be central to all of these interpretations.

We argue that our model for exploring the concept of the 'Digital University' could be equally useful when thinking about the distributed university.

The notion of the Digital University has gained traction in the last few years as a key topic in the discourse of organisational and educational development in Higher Education around the world, and as a focus for academic research in areas including learning literacies, teaching practice, and technological developments (e.g. McCluskey & Winter, 2012; Goodfellow & Lea, 2013; Selwyn, 2014).

The starting point of our work in this area was by trying to provide answer to the question 'what do we mean by the term Digital University?' We challenged the assumption that this was a largely trouble free concept driven by technological innovation and infrastructure developments, that could be managed through existing institutional structures. Emerging narratives included an overly techno-centric view that technology alone constituted an environment that could be nominated as 'digital'. We felt a need to acknowledge the human and social processes involved and proposed that a truly digital university can only be fully realised where there is a fusion between technology and staff/student developments driving innovation and creativity.

We set out to develop a strategic model which would provide a multidimensional, holistic view of the concept of the Digital University, one which could offer a flexible tool for engaging staff in identifying and formulating systematic programmes for change through harnessing, or developing, digital spaces, practices, and provision.

This work was instantiated within a series of blog posts entitled *A Conversation around what it means to be a Digital University* (MacNeill & Johnston, 2012), and which explored the nature of higher education, technology-enhanced learning, social media and other related issues and phenomena in terms of strategic development within universities.

The Conceptual Matrix for the Digital University which emerged as the key outcome of the above work (Figure 1) is based on four key constructs – digital participation, information literacy, learning environment, curriculum and course design – and the interrelationships between them.

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Digital Participation	Information Literacy
<ul style="list-style-type: none"> <li>*Glocalization</li> <li>*Widening access</li> <li>*Civic role and responsibilities</li> <li>*Community engagement</li> <li>*Networks (human and digital)</li> <li>*Technological affordances</li> </ul>	<ul style="list-style-type: none"> <li>*High level concepts and perceptions influencing practice</li> <li>*Staff &amp; student engagement and development</li> <li>*Effective development and use of infrastructure</li> </ul>
Curriculum and Course Design	Learning Environment
<ul style="list-style-type: none"> <li>*Constructive alignment</li> <li>*Curriculum representations, course management, pedagogical innovation</li> <li>*Recruitment and marketing</li> <li>*Reporting, data, analytics</li> </ul>	<ul style="list-style-type: none"> <li>*Physical and digital</li> <li>*Pedagogical and social</li> <li>*Research and enquiry</li> <li>*Staff and Resources</li> </ul>

**Figure 1** Conceptual Matrix for the Digital University (MacNeill & Johnston, 2012)

Starting with the macro concept of *Digital Participation* that provides the wider societal backdrop to educational development, *Information Literacy* enables digital participation and in educational institutions is supported by *Learning Environments*, which are themselves constantly evolving. Each of these has significant implications for *Curriculum and Course Design*.

With respect to the interrelationship between the categories, the matrix positions Digital Participation as involving public engagement by the university with government digital policy, and the growing potential of social and ‘consumerist’ interactions offered by digital technology and the Internet. Information Literacy enables Participation through developing skills and identifies those both of academic relevance and relating to personal development. Both Digital Participation and Information Literacy are channelled through the university’s Learning Environment, which is conceived in both technological and, critically, in academic and pedagogical terms. All three then influence and condition Curriculum and Course Design.

Since being developed, the Conceptual Matrix has successfully been applied in aiding strategic engagement and scoping possible future developments at a number of universities in the UK (including the University of Dundee, University of Greenwich and Glasgow Caledonian University) and also at Macquarie University in Sydney.

In these various contexts the Conceptual Matrix has been used to:

- Analyse policy documents
- Channel strategic discussion
- Focus on specifics whilst retaining a broader perspective
- Shape the division of labour to best effect
- Co-ordinate projects, debate, decision-making and action.

The most significant application of the Conceptual Matrix thus far has been in the Digital Futures consultation undertaken at Edinburgh Napier University between 2013 and 2014.

At Edinburgh Napier, the model and framework provided a basis for an initial mapping of internal practice, provision and resources. It was also used a starting point for an extensive consultation exercise with staff and students. Throughout the project, we acted as critical friends to the Digital Futures working group, providing objective commentary on discussions, findings and the final project report and recommendations.

We suggest, through our experiences to date, that any approach to the development of distributed learning and teaching needs to emerge from a bottom up, institution wide, systematic consideration of digital participation, curriculum design and delivery, information literacy and learning environments as identified in our model.

The main purpose of our work to date has been to provide a critical exploration of the overarching term ‘Digital University’. Our critique offers a holistic concept that encompasses the human, pedagogic, strategic and technological dimensions that interweave in defining the nature and potential of digital practice in higher education.

We believe that only through such a holistic approach can we achieve the best use of digital technology and practice within education. Without such an approach, we suggest that digital developments will remain in traditional silos, thereby fragmenting any potential transformation to strategy and practice and in turn digital distribution.

### What is nature of distribution in the digital age?

We continue to explore and develop the matrix through conference papers, presentations and blog posts. We are currently developing a book proposal to explore our ideas in greater depth. We welcome opportunities to discuss our ideas with other individuals and institutions.

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