GUEST EDITORIAL

Introduction

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It is a great pleasure to be the guest editor of this IT-AEC special issue on e-learning in construction, for a number of reasons. *Firstly*, because this topic is of shared interest to the academic community and to colleagues in industry. *Secondly*, because I have spent a number of years researching in this field and it has become apparent to me, that the act of learning has as many sharp angles as there are in the art of teaching. In understanding how individuals learn and the styles of learning that need shaping to meet the demands of industry, it may then be possible to dedicate the appropriate methods of teaching and promote learning by their sharp angles. One of these methods is the use of e-learning. Finally, because this issue comes to you at a time when the UK Government's White Paper on higher education has been made publicly available. The White Paper sets out the Government's plans for radical reform and investment in universities and HE colleges. Part of these plans is to make higher education open to everyone with the potential to benefit, and for there to be enough choices for flexible study including 'e-learning', to keep up with the changes in society and the economy.

Government demands and new policies on life-long learning are not the only pressures facing Higher Education. There are other pressures such as changes in the government funding methodology, council strategies, QAA subject review and codes of practice and, the change in the nature of students and society. Within the construction domain, these pressures become challenges. This is due to continuous demands of the construction industry for highly intellectual graduates with visual, technical and experiential skills.

E-learning plays an important role in providing an interactive, open, flexible and rapid mode of delivery. Beside all these benefits, e-learning, is one method of promoting experiential learning ('learning by doing') which is the most common mode of learning in construction. The future of e-learning is broad. It is envisaged by the technology promoters that everyone will have a portable electronic personal learning associate, which will be able to assemble learning or monitor presentation on demand, providing quality learning opportunities anytime, anywhere. The power of e-learning is demonstrated in this issue via five high quality papers, submitted by academic colleagues from different countries. The papers cover a broad range of topics on e-learning in construction, such as virtual learning of 3D modelling, virtual site tours, multimedia developments, virtual soil labs, and distance learning programmes.

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The first paper by, Ahmed, Mahdjoubi, Leach and Feng addresses the importance of understanding students' learning styles and their spatial skills for promoting their learning of 3D CAD concepts and the development of 3D CAD models. The paper describes an on-line tool developed to test students' spatial abilities and demonstrates the power of e-learning in developing innovative methods used for promoting the teaching of 3D CAD software.

Kumaraswamy describes an on-line tool that promotes 'virtual site visit' to aid undergraduate students with the understanding of construction processes, without physically going on site. This paper demonstrates the potential benefits of on-line technologies by catering for large class sizes thereby saving time and costs, as well as their capability for capturing knowledge of real life processes via the use of multimedia technologies.

The third paper by Ellis and Thorpe is a case study which reflects on the findings of an illuminative evaluation of a bespoke project management hybrid CD-ROM (DIME^{PM}) which sought to identify "facilitators" and "barriers" to learning arising from the use of Computer Based Training in an industry setting. This paper advocates a mixed diet of face-to-face and student-centred activities that maximises the advantages of each delivery mode.

Shen and Scott describe an on-line postgraduate programme in project management run by the Department of Building and Real Estate of the Hong Kong Polytechnic University, designed to meet the needs of professionals in the construction industry who wish to acquire new skills and insights as part of their continuing professional development. The paper reflects on the successes and lessons learnt by the running the programme and the potential of on-line learning in creating opportunities for presenting complex ideas and monitoring students' performance.

The last paper in this issue by Ge, Lam and Cheung describes the development of a Web-based virtual soil laboratory and reflects on the potential benefits of such a tool, particularly when strategically developed via the understanding of learning theory and how people learn through a constructivist approach. The paper also reflects on the potential benefits of such approaches.

Finally, I would like to thank the editor of IT-AEC Professor Chimay Anumba, for acknowledging the importance of e-learning through the publication of this issue, and for his continued support and constructive comments at various stages of this publication.

I would also like to thank all authors who responded to the call for papers and to apologise for not being able to include all contributions in this issue. Special thanks go to colleagues who participated in the review process, particularly, Professor Brian Sloan, Professor Ghassan Aouad, Professor Dino Bouchlaghem and Dr. Paul Brett.