Global J. of Engng. Educ., Vol. 3, No. 3
Printed in Australia

Using a Widebank Network as a Vehicle in Widening Access

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In common with many cities that were once engaged in heavy manufacturing industries, the City of Glasgow faces the challenge of widening access to education to equip an emerging workforce with a range of skills appropriate in the current economy. The Glasgow Telecolleges network is one initiative which embraces that challenge by creating an innovative and exciting learning environment in which learners are much more able to manage their own learning. There is evidence that, as a result, learners are encouraged to participate further in life-long learning.

BACKGROUND

The Glasgow Telecolleges Network (GTN) is a partnership of ten Further Education Colleges supported by four local universities, the Scottish Office, the Scottish Council for Educational Technology, the Strathclyde European Partnership and the Glasgow Development Agency. The GTN has implemented an ATM-based 115 Mbps infrastructure which currently supports 85,000 students and offers online learning, video-conferencing and access to data services. Its key target audiences are Small and Medium Size Companies (SMEs) and disadvantaged learners.

The City of Glasgow Council has taken the strategic decision to establish links between the GTN and its secondary schools in the first instance, and subsequently all of its schools. The GTN and the Higher Education Metropolitan Network are already linked. Other partners such as the Public Libraries network intend to link to the GTN. Other access points in shopping malls and other public places are likely.

A PROUD PAST; A PROBLEMATIC PRESENT

Glasgow shares with many British and American cities the unwelcome legacy that the loss of heavy manufacturing industries brings. The service sector has grown but not sufficiently to offset the losses. McTavish and Wilson note that:

> *48% of Scotland's most deprived enumeration districts are in Glasgow; 10.3% of the economically active population are unemployed while the Scottish average is 5.5%. Out of the total population of 616,000, 86,000 people receive Incapacity Benefit; yet Glasgow is the third most important centre for research in the UK (after London and Oxford); and the second biggest retail centre in the UK (after London)* [1].

Educational achievement is also disappointing in Glasgow:

- Over a quarter of the Glasgow workforce has no qualifications (20% in Britain).
- 45% of Scottish 18-21 year olds enter Higher Education at some point, but only 15% in Glasgow; in Glasgow's regeneration areas the figure is 5%.
- 15% of Glasgow school leavers proceed directly into HE (Scottish statistic 27%).

Recent statements of the Glasgow Development Agency show the growing realisation that the city must seek to become a learning society where learning is normal, where improving skills is expected of everyone, where learning is not the privilege of the few. The city must ensure that the *it's-not-for-the-likes-of-us* syndrome becomes a prejudice of the past.

THE GTN VISION

The GTN's vision is:

> *To provide Glasgow with a state-of-the-art superhighway capable of supporting learners into the next century and so to contribute to the economic regeneration of the City of Glasgow by developing innovative FE/HE programmes for delivery over a broadband network.*

The strategic vision of the GTN is to put Glasgow in the forefront of European cities through exploiting the potential that telematics offers in making education and training available to SMEs, disadvantaged learners and other client groups.

THE NEW LEARNING PARADIGM

The GTN partners subscribe to the view that:

> *Economic and social changes are stimulating a paradigm shift in higher education throughout the developed world. Colleges and universities are no longer being seen as institutions which exist to provide instruction (the* knowledge-based paradigm*) but as institutions which exist to produce learning (the* capability-based paradigm*).*

In the Glasgow context that paradigm shift is welcomed by colleges, universities, economic development agencies and local government. The GTN has been energised by that common commitment to change.

The rate of change achieved to date has been possible both because of the availability of the appropriate learning technologies but also of relevant published research. A body of research exists which identifies *the meta-cognitive skills which enable people to learn how to learn* [2]. MacFarlane comments:

> *Learning is an interactive and dynamic process in which imagination drives action in exploring and interacting with an environment. It requires a dialogue between imagination and experience.*

In the light of these findings the GTN partners have concluded that:

> *The GTN would expect that its delivery systems would take account of such research to ensure that its quality standards embrace all aspects of the learner's learning experience from initial counselling onwards* [3].

To achieve these systems of delivery, GTN aims to offer programmes that use the high bandwidth network to full capacity. By involving the learner in a dynamic interactive online process incorporating video, stills and text structured in a clear, graphic house style, learning takes place in new ways.

The learner is encouraged to progress through a Learning Environment with a personalised profile, to access courses when and where they choose, and at their own pace. The process of online learning is complemented by face to face support and tuition, e-mail discussion groups with tutors and other learners, and online discussion in real time across the city. Videoconferencing is often part of this interaction process with others.

A GTN learner can start with a taster to familiarise them with computer-based learning, or engage in *edutainment* by accessing packages in browser mode, and can gradually be offered small steps on the learning ladder.

Attracting adults back into learning requires methods that differ radically in approach to their often unfulfilled school experience. Self-assessment by browsing, leading to the possible option of certification for 10 hour building blocks of learning, reinforces confidence and captures the imagination, often leading to the learner taking the next step.

From *Learning to Learn*, a GTN package that involves interaction on study skills, information search skills and career opportunities, to interactive programmes co-authored with partners such as BBC Education in London, and IBM for business skills, a bank of online learning is under development to widen access for all. One such package, *Wall to Wall*, has over 200 digitised BBC video clips on architecture, design and sociology combined with GTN pedagogical input in the form of stills, text, self-assessed browsing through to formal assignments providing up to 200 hours of structured learning.

The satisfaction gained by certification for a small learning step, and a clear path to where this can lead next, each step educational and enjoyable, flexible and locally available, is all becoming widely accessible to Glasgow's learners through the technology and wide subject expertise within GTN.

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BIOGRAPHIES

Helen McNamara is the Manager of Glasgow Telecolleges Network, a partnership of ten Further Education Colleges in Glasgow, Scotland, providing 85,000 students, businesses and disadvantaged groups with high bandwidth access to online learning.

Previously she was Senior Lecturer in Glasgow College of Building and Printing within the Faculty of Built Environment, specialising in interior architecture since 1984. In addition to programme leadership for Higher National Diploma and Degree work, her research into online learning and computer mediated communication led to the development of a range of built environment projects, including online multimedia packages for architecture, design, sociology and construction with BBC Education London.

Before entering education, Helen worked in London as an interior architect on retail, leisure and office projects for the UK and overseas.

Professor Thomas B. Wilson (BSc, CEng, MBCS) has been Principal of Glasgow College of Building and Printing since 1989. Previously he held deputy principalships in two Glasgow colleges.

He is Chair of the Executive Committee of the Glasgow Telecolleges Network, Chairman of the Scottish Council for Educational Technology, Council Member of NILTA and Chair of the Association of Scottish Colleges' Information and Learning Technology Group and of the Association of Scottish Colleges' Information Systems Group. He is a Member of the Advisory Committee for the National Grid for Learning.

He has recently been appointed Chair of the Glasgow Colleges Group and Chair of the Principals Planning Forum of the Glasgow Strategic Planning Forum.

His overseas experience includes International Director of EC-funded project in Nigeria 1989-94 and British Council consultancy in Brazil 1994-97.

The Application of Computer-Assisted Training Programs in Engineering Education

edited by Zenon J Pudlowski and Roger G Hadgraft

This is the third volume in the *Monash Engineering Education Series*, established by the UNESCO International Centre for Engineering Education (UICEE) in the Faculty of Engineering at Monash University, Melbourne, Australia.

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Development of the course was a collaborative effort on the part of several academics from various units within Monash University, carried out under the leadership of the UICEE. The material was then further refined for publication, based on research on the effectiveness of the course conducted at its conclusion by UICEE.

This course, and indeed this book, are the direct result of a UNESCO initiative to disseminate highly specialised teaching materials to science, technology and engineering educators worldwide. The book is therefore highly recommended to everyone interested in the most recent innovations in computer-aided teaching and learning.

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