The Global Campus Project – Using e-learning to extend access to new populations of students

Maya Milankovic-Atkinson, Chris Sadler
Middlesex University
School of Engineering and Information Sciences
The Burroughs
London NW4 4BT
United Kingdom
Email: m.atkinson@mdx.ac.uk c.sadler@mdx.ac.uk

Abstract

The Global Campus (GC) project started in May 1999 between the School of Computing Science (SCS) of Middlesex University (MU) and the Regional Information Technology and Software Engineering Centre (RITSEC) in Cairo[1]. RITSEC were keen to further develop their collaboration with Middlesex University and it was decided to launch a complete MSc programme in Distance Learning (DL) mode. This was in line with the University strategy to expand its provision overseas to meet the vast demand for British higher education abroad by offering e-learning supported programmes to provide access to students who would otherwise be unable to benefit due to the prohibitive costs of studying in the UK.

At the time there was a worldwide demand for IT/Computing academic qualifications offering good employment opportunities.

Professor Mark Woodman, who joined the School from Open University, played a key role in specifying the pedagogy, determining the structure of the Web-based material and choosing the technology for delivering and implementing the e-learning programmes.

During the course of the project, GC programmes were delivered to students at seven collaborative partner institutions located in five countries: China, Cyprus, Egypt, Hong Kong and Singapore. These programmes were part of the portfolio of the Business Information Systems (BIS) Academic group of the SCS and the same programmes were also delivered to students at our London campus. All programmes employed the same course management, assessment and quality control procedures so that all students had an equivalent learning experience. These procedures complied with the standards laid down by the Quality Assurance Agency (QAA) of the Higher Education Funding Council (HEFCE).

The paper is an attempt to analyse our experience once the project came to an end with the start of the Academic year 2007/8.

Introduction

MU had valuable practice in providing programmes at multiple campuses (11 campuses in London 1999). The same facilities were provided to students at each of the campuses: library, student services as well as administrative technical support and control. Until 2004 the SCS was itself based at three campuses in London.

MU also had over twenty years of experience of running educational partnerships of various categories both at home and overseas[1]. The GC programmes were in the category of *franchised* programmes. This type of educational partnership refers to "MU programmes & qualifications designed, assessed and quality assured by MU but delivered at and by a Partner institution. Students study at the Partner institution overseas by distance learning mode but are supported by the Partner as the Learning Support Centre (LSC) to act as a resource,

[1]MU CLQE Handbook.

tutorial and examination centre" [2]. LSCs are most often at a campus of an existing University in the overseas country.

Design and Development of the e-learning provision

The first GC programme was the MSc in Business Information Technology (BIT). At the time the MSc (BIT), comprising 9 modules, was well developed and had a substantial amount of learning materials readily available. The learning material was in the form of a handbook for each module. Each handbook contained the module objectives, lecture notes, tutorial exercises, sample examination papers, coursework, reading lists etc.

The development task therefore was to transform the existing instructional learning materials into learner-centred *constructivist* distance learning materials utilising e-learning facilities. The module handbook was a starting point.

The learner-centred learning constructivist approach puts emphasis on presenting the material in such a way that allows students to study independently. Learning materials are thus designed around *learning activities* which the students are expected to complete. Any narrative or descriptive content is provided so as to enable the activities to be performed instead of acting as the primary didactic source, as in a traditional lecture programme. Transforming the material in such a way to make explicit what was expected of the student to do and achieve in each of the Learning Outcomes was very different from the instructionist format found in the handbooks.

A Virtual Learning Environment (VLE) was needed to deliver the material on-line and WebCT was selected. It provided all the normally available facilities of a VLE: content delivery tools, assessment tools, communication and collaboration tools and management tools. The constructivist approach in the design of learning materials was supported by the VLE in helping students to manage their study. WebCT could be used for synchronous, collaborative interaction among instructors and students, or asynchronous learning resources for individual use by students at any time.

MU measures programmes in credit points[3] – a Bachelor's degree (BSc) is worth 360 credit points and a Masters Degree (MSc)180. A credit represents about 9 hours of learning time. All modules were either 10, 20 or 60 credit points[4]. The MSc BIT consisted of 4 x 10 credit modules, 4 x 20 credit modules and the dissertation module of 60 credit points.

GC adopted credits as **units** of learning. The taught modules were divided into ten units. This meant that the 20 credit modules had 10 x 2 credit units and the 10 credit modules 10 x 1 credit units.

To ensure consistency the presentation, the format and learning style were standardised. It was difficult to decide on a core pedagogy because of the conflicting requirements of the different modules on the programme. Some required substantial practical work whilst others involved much more discursive work.

The adopted pedagogic model for GC was a modified version of the *ICARE* system pioneered at San Diego State University[5].

[2] Quoted from the CLQE handbook 2008/9 Guidance 2(iii) page 32.
[3] I European Credit Point is 2 MU credit points
[4] From September 2007 MU introduced a new Learning Framework whereby modules are standardised to be 30 credit points.
[5] For latest information on ICARE see Dr. Vincent L. Salyers, California State University, Fullerto, Using the ICARE Format for Structuring Online Courses
http://works.bepress.com/dr_vincent_salyers/9/

ICARE is an acronym derived from the names of the five sections into which the material is structured:

Introduction – the section that places a unit in the context of the module and states the Learning Outcomes.

Connect – presents new information in context.

Apply – the practice section which engages students in performing a specific task.

Reflect –provides an opportunity for students to reflect on their learning experience.

Extend –prompts for further study or offers activities in which students could explore related topics.

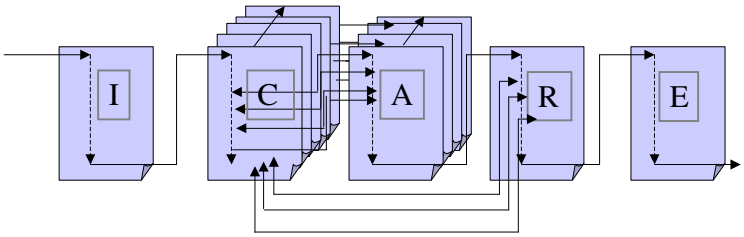

Fig. 1 The MU ICARE pedagogic model

In the MU pedagogic model [2,3] the *Introduction* also included a list of the materials to be used, for example, software, websites, book references; the study time listing the different types of learning activities and the expected length of time students would need to devote to each (adding up to the 9 learning hours per credit).

The *Connect* was replaced with *Content* and was a departure from the liner flow of the *ICARE* model. *Content* sections had hyperlinks to activities in the *Apply* sections and to self assessment questions in the *Reflect* section. The aim of the design was to ensure that the hyperlinked cross-references represent semantic networks of knowledge.

Students would, after reading part of the *Content,* do some exercises whereby they would *Apply* what they have learned before continuing. Each activity had incorporated feedback usually in the form of a solution to the problem.

The *Reflect* would be the part of the material which students would be expected to complete at the end of the unit by making entries in their learning journal, contributing to a discussion forum or engaging in review questions which were often similar to components of typical examination questions.

The *Extend* section as well as prompting for further exploration of the subject had a short on-line quiz which was intended for formative assessment.

The transformation of the handbooks to e-learning material was performed mainly by academic staff of the SCS. The module leaders (MLs) - the lecturers who were responsible for delivering the module - were required to break down the module syllabus into units and were invited to author all or a selection of the unit learning materials. There was often a team of academics working on a module so there were other lecturers to author units which the ML might have declined to tackle. All authors were given training by the GC project team. Every unit was subsequently reviewed by a subject specialist from the SCS academic staff or occasionally by an external specialist. Additionally the material was also available on CD-ROMs to cater for students who may have difficulties accessing the Internet.

Interestingly enough as soon as the e-learning material was on WebCT students demanded a hard copy – printable form of the material made available in the form of .pdf files which the students could print. In addition to the development of new modules, each existing module was reviewed annually for updating, taking account of feedback from the module leader, the student questionnaire, the tutors, examiners and student progression data.

The initial MSc BIT programme was first piloted at RITSEC with the first two modules starting in September 1999 and the team adding another two modules each semester. By December 2000 all except for the project module were complete. A second Masters programme, the MSc E-Commerce, was developed subsequently. Because it shared some modules with the MSc BIT only four new modules needed to be developed.

All GC programmes were delivered in *blended* learning mode [4, 5]. The material was available in the various online and paper formats and the students also had access to the University's student record system and on-line digital library facilities. They were also provided with a hard copy of the subject handbook covering their entire programme, an e-learning study guide to familiarise them with the learning environment and one or two core textbooks per module. The LSC provided face to face tuition usually on a weekly basis. MU specified the minimum amount of class contact required which was 45 minutes per one credit unit and 1 ½ hours per two credits and it was up the LSC to adjust according to local needs. This was usually in the form of weekly sessions at the LSC. The GC intended teaching model did not expect the tuition to consist of repeating the content of the material but ideally for students to have already completed their initial study of the unit so that the tutorial would consist of discussions and clarifications and dealing with any issues that may have arisen.

As mentioned earlier the assessments were set by the MU module leaders and the courseworks were marked locally and then moderated by MU lecturers. Exams were marked solely by MU lecturers. Assessment results for GC students were approved by the exam. board considering the module results in the UK. Disparities in marking were scrutinised by external examiners to ensure comparable standards of marking. There were occasions when the LSC tutors would give higher marks by applying standards they were accustomed to –for example, the pass mark at MU is 40 % and anything above 70% counts as a first class pass whereas in some universities overseas the pass mark might be 60% and a first class pass is above 85%. This would be noted and adjusted by the exam. board. For these boards video conferencing facilities were used so that Partner institution staff were able to 'attend' electronically.

One of the successes of the GC programmes was that the successful course completion was far higher than in many DL programmes reported in the literature. Student achievements were in line with results of students in the UK on the same programmes taught conventionally.

The SCS also developed some seven *core* modules of the undergraduate programmes in GC format but intended for UK use only. These core modules were compulsory for all Undergraduate (UG) programmes of the SCS and some were also offered as electives to students of other schools. Many of these modules were very large at the time, for example one level one (first year) module had 1096 students in a single semester of 2002/3 with 56 tutorial groups across 3 London campuses.

Many changes took place after MU joined the UKeU project in 2003. GC no longer was primarily a SCS project. MU services such as the MU Centre for Learning Development (CLD), MU-Press, etc. gained a more prominent role. Within the SCS itself the newly appointed Business Development Manager heading the Business Development Unit (BDU) assumed financial control.

Undergraduate programmes specifically the BSc Business Information Systems (BIS), and a Foundation programme Computing with Business were added to the GC project portfolio. The seven core UG modules were later included in the material that the GC team developed for the BSc BIS.

The adapted MU version of the *ICARE* model was replaced by *SCATE* – a CLD developed instructional design model[6].
SCATE stands for:

Scope – with the same structure as the MU version of the *ICARE Introduction*
Content –the main unit content and also connects to the rest of the material.
Activity – activities that will help students understand the information presented to them in the previous section.
Thinking - equivalent to *Reflect* of *ICARE* .
Extra – was optional for undergraduate modules and would contain remedial material for units that are difficult for some students or supplemental or as in *ICARE Extend* additional material for students who may wish to explore the unit topics in greater depth.

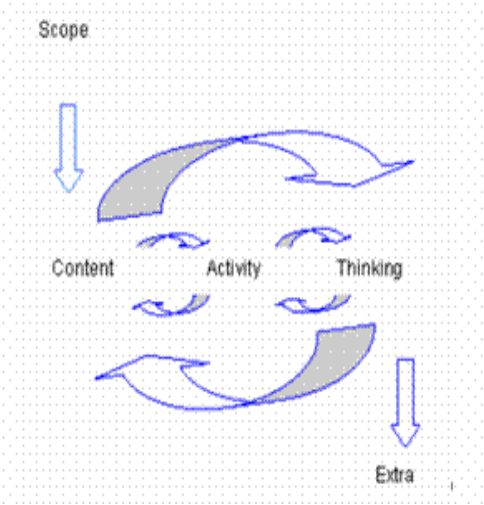

Fig 2 The SCATE pedagogic model

The *SCATE* model was more prescriptive:
Each Learning Outcome had to have at least one activity. Each *Thinking* section had to have at least one group discussion topic.
A one credit unit was expected to have up to 3 learning outcomes and a 2 credit unit not more than 6 learning outcomes. One credit was 9 hours of study.

The different levels of programmes were now structured differently:

- Foundation programme modules (level 0) 10 x 2 credit units
- Undergraduate programme modules (levels 1 – 3) - 12 units at each level: 8 x 2 and 4 x 1 credit.
- Postgraduate programme modules (level 4) 20 x 1 credit.

The curriculum as a tangible resource also started being marketed in the form of text books – by transforming a number of modules into book format *Readers* published by MU Press. Some of the most successful readers were then published by Thomson FastTrack series.

The GC team

The GC team in 2000 had one full time administrator, three members of academic staff who for periods of up to 1 semester were assigned to the project full time but had full teaching and

[6]Three GC e-learning guides were written by CLD: authoring and reviewing guide, study guide and tutor guide, published by MU-Press.

administrative commitments the rest of the time, and a technician. RITSEC provided some form of technical support up until 2005, mainly in converting the material from Word format to html and incorporating the hyperlinks into the learning materials. A full time research fellow was appointed in 2002.

The development of modules for GC involved the GC technical and academic staff, supporting MLs and other lecturers writing, reviewing and updating the material; the administrative staff managing the process and the BDU implementing and printing the materials. In total, thirty five e-learning modules were developed for GC delivery covering four entire programmes of the Business Information Systems group and representing one third of the SCS curriculum.

Fig 3 The GC team in 2003

From left to right: Chris Sadler GC Curriculum Leader, Dr.Maia Dimitrova Research Fellow, Maya Milankovic-Atkinson CL BIS UG programmes, Sandra Smith administrator, Dr Stylianos Hatzipanagos Teaching & Learning Strategy Coordinator , Paul Smith technical support, Russell Winborn technical support, Dr Pav Chera CL BIS PG, Julie Macdonald Admin Manager.

The GC team provided support at one point to as many as 650 students on the SCS programmes running at the seven LSCs in five countries. For day-to-day operations, the technical staff provided support in dealing with problems in the use and installation of software, setting up and implementation students accounts and of on-line assessments such as Lab tests etc. This required close cooperation with the MLs in the UK and the tutors at the overseas LSCs and the MU computing services. Assessments were the synchronisation points for the programmes wherever they are delivered and this was a carefully planned and managed task.

The administrative staff played the role of a Campus Office and Curriculum office. They dealt with any problems and queries on a daily basis, liaising with the SCS MLs, CLs, LTs and the University services. This included the collection and distribution of all materials related to programme delivery, assessment and examinations for all modules offered in Distance

Learning (DL) GC mode and later in conventional face to face mode at the Middlesex Campus in Dubai. GC administrative and academic staff played a key role in the support for new franchises from academic planning through to the delivery. This involved the preparation of the validation documents, programme handbooks, and the preparation for the delivery of the programmes. They also were heavily involved in preparing for the successful QAA audits[7].

Gradually as the number of programmes and number of LSCs grew the GC team eventually had 12 members of staff. The structure of the team and the roles changed with time but it remained mostly a horizontal organisation as is frequently the case with Computing projects. The GC academic staff as well as being MLs for GC modules had curriculum leadership (CL) responsibilities which in other institutions would be the equivalent of directors of programmes. There was one CL for all undergraduate programmes, one for all postgraduate programmes of the GC distance learning provision. The curriculum leader Pedagogy was a responsibility introduced as part of the UKEU project. Figure 4 is a photo of the GC team in 2005.

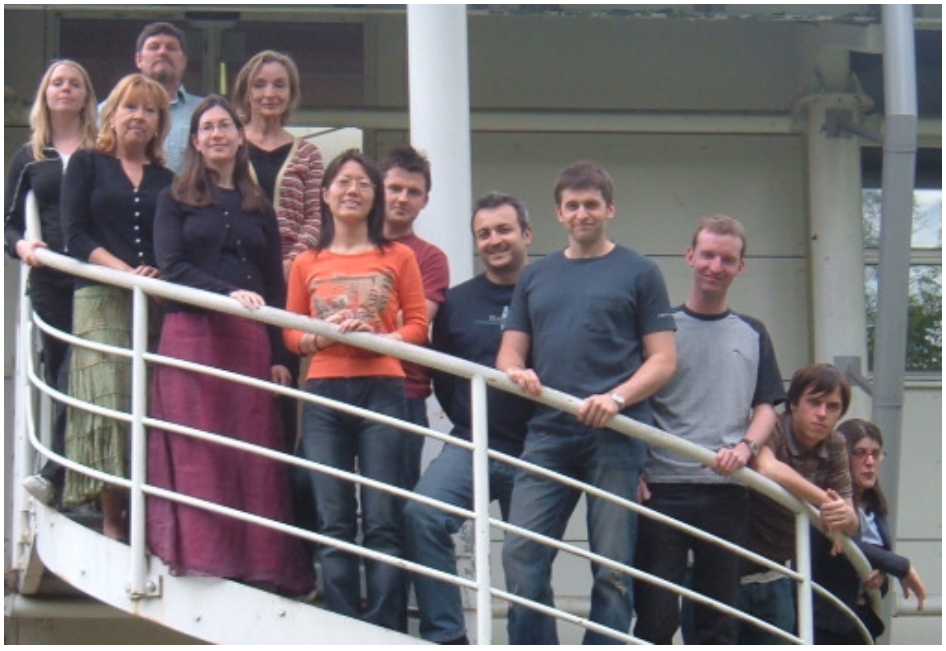

Fig. 4 GC Team summer 2005

From left to right: Jenny O'Reilly e-learning assistant, Sue Griffin e-learning support manager, Chris Sadler GC PG Curriculum Leader, Dr Lara Frumkin Research Fellow, Maya Milankovic-Atkinson Acting Academic Group Chair and GC UG Curriculum Leader, Chunyan Liu PhD student, Russell Winborn e-learning education technology manager, Dr George Dafoulas CL Pedagogy, Andrew Francos technology assistant, Paul Smith education technologist, Matt Ferguson admin assistant, Thespina Brothwell e-learning admin assistant

With the appointment of a research fellow, GC was successful in attracting external research grants. The externally funded projects were:

[7] There have been two QAA audits involving GC:
1. Collaborative provision audit
   http://www.qaa.ac.uk/reviews/reports/institutional/MiddlesexUni05/MiddlesexUni05.pdf
2. Research Institute of Tshinghua University, Shenzhen (China)
   http://www.qaa.ac.uk/reviews/reports/overseas/RG301Middlesex.pdf

- Asian Distance Education (e-learning) Professional Training (ADEPT) with three partners £ 135 503
- IPR a GC case study addressing the issues of Intellectual Property Rights in International e-Learning programmes £ 15 000[8]
- IntCultNet, EU-Minerva (Intercultural Learning in the Internet) £ 27 709
- Network for Teaching Information Society (NET-IS) 2-year Leonardo project €63 000 developing widely accessible, relevant, innovative and sustainable e-learning courses on the Information Society.

GC Programmes

After the successful pilot of the first two GC modules of the MSc BIT at RITSEC in Cairo September – December 1999, in January 2000 the MSc BIT was franchised to Hong Kong at the School of Professional and Continuing Education (SPACE) and also enrolled its first DL students in Cairo at the Regional Information Technology Institute (RITI).

In 2001 the second GC MSc programme – MSc E-Commerce was completed and franchised to SPACE and RITI as part of the GC provision. The MSc BIT was also started at the Singapore Polytechnic Graduates Guild (SPPG) in 2002 and at Fudan University, Shanghai, Ningbo University and at the Research Institute of Tshinghua, Shenzhen (RITS) in China in 2003. At the same time the BSc BIS was launched at RITS and the following year at Ningbo.

That same year, 2004, the BSc BIS final year (top-up) programme started at the Hong Kong University of Science and Technology College of Life Long Learning (HKUST-CL3) and in January 2005 the MSc BIT was also offered in Cyprus – at Intercollege in Nicosia.

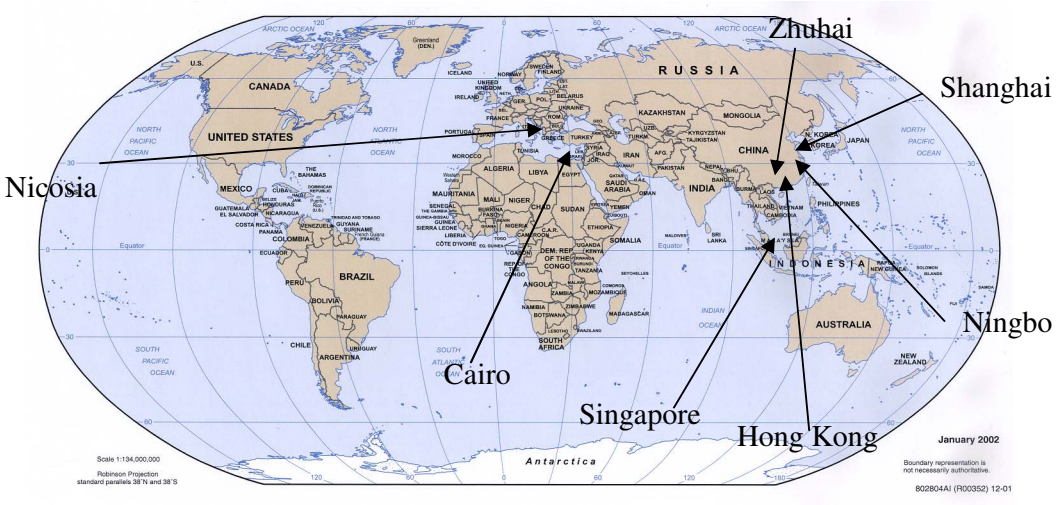

Fig 5 LSCs where GC programmes were delivered

Unlike the GC programmes in Egypt, Hong Kong, Singapore and Cyprus, the programmes in China were studied full time at the LSC for the initial parts of the course. The BSc students completed two years of their programme and the MSc students one year. Then the students would come to the UK for the final year of their programme and study alongside their colleagues in the UK.

[8] See References [23]

How the e-learning materials were used

The GC blended learning model as described earlier was successfully deployed at LSCs where the students were studying part time with full time jobs during the day such as Hong Kong, Singapore, Cairo and Nicosia. The LSCs in China performed traditional face to face teaching supplemented by the GC material. In addition, the computer-based and on-line materials for interactive open and distance learning were also made available in a *resource-based* learning format by London-based students and also later in Dubai and Sri Lanka where SCS courses were franchised in traditional teaching mode.

The GC team offered numerous workshops for lecturers intending to use the GC materials for *resource* based teaching although the decision as to how to use the materials in London was left to the lecturers themselves [6]. Some MU lecturers chose to ignore the GC e-learning material and continued to deliver the same module in the same way in which they were used to. Others used it only to supplement their own learning material but there were also lecturers who continued with the traditional face-to-face delivery but also made full use of the VLE for collaborative work among groups of students, peer assessment of submitted courseworks and bulletin boards for discussions. A few lecturers were committed to the full *resource based* learning format. They used lectures to introduce the new topics and explain the practical work expected of the students that week and gave the students a more active role. Students would then ask for some topics to be explained again, or ask more constructive questions or discuss some specific topic. The tutorial sessions in groups not more than 20 would concentrate on the practical work from the *APPLY* section, discuss topics from the *REFLECT* section, complete the on-line quiz and work on the coursework.

There was a very large turnover of staff teaching Computing both in the UK and overseas so the existence of DL material for entire programmes made it easier for new lecturers to take over and teach. In spite of this, most academics had their own views about how the subject should be taught so the modules were regularly updated.

The GC researchers conducted a versatile studies of the learning behaviour patterns of distance learning students on GC programmes and the learning effectiveness with the aim of improving the learning environment and teaching strategies [7, 8, 9]. The effectiveness was based on the assessment results. Their findings demonstrated some of the benefits offered by the GC model of e-learning. For example, based on assessment results, it was established that *resource* based learning for campus based students can improve grades by 10%.

Because the material was available on CD-ROM and as .pdf files as well as on the VLE, it was more difficult to establish exactly how successful the use of the VLE had been. However, the existence of the VLE allowed some MLs to introduce some variety in the design of their assessments - for example incorporating student postings on the bulletin board as part of an assessment. Data from the WebCT log files provided evidence of the length of time students spent on-line using WebCT and of which sections of the material and which facilities of the VLE they had used[10, 14, 15, 16,17, 20].

Several studies were conducted regarding e-learning teaching [11, 22]. Research into different aspects of e-learning was facilitated by the fact that the programmes offered in DL mode were also running at the London campuses. The teaching strategies, cultural issues, feedback from students tutors as well as academic achievement could be easily compared [12, 13, 18, 19, 21, 25]. Students in general greatly appreciated the flexibility that the GC provision offered them - they could work from home and it became possible to fit studying in with family and work obligations; they could access resources over the Internet, chat with peers and communicate with tutors. It was more of a challenge to the tutors who could be reluctant to allow students to have more control. One of the deliverables of the ADEPT project was a training course for e-learning professionals.

In a University study[9] of VLE usage of 1700 online modules, 16 of the 20 most intensively utilised modules were GC modules. Another University study the same year analysed sustainability by correlating fee income accumulated to each programme against staffing costs. The results showed the SCS costs to be 75% of the mean costs across the University. The BIS group programmes cost only about 70% of the SCS average or 53% of the University's cost. The average number of students on a BIS module was 201. Although the majority would have been attending at London campuses, the existence of the GC e-learning materials, designed for DL students, contributed greatly in reducing the cost of programme delivery in the UK [24].

Summary and conclusion

The GC project created programmes with a number of characteristics that distinguished it from other e-learning DL programmes:

Students were provided with

- the same curriculum as the traditionally-taught students. Instead of designing a special DL programme the project created a DL mode of study of existing programmes by redesigning the instructional format, taking advantage of information technology and improving their quality.
- the same assessments. The DL students were given the same assessments as local students.
- the same lecturers. The module leaders were responsible for both the local and the DL students.
- the same support. As it was not possible to replicate the MU student services at every LSC, the GC staff acted as an interface between the DL students and the services of MU.
- the same course management and quality control procedures applied to their provision, as laid down by the QAA of HEFCE.

The blended learning, learner-centred pedagogy

- made students more independent and in charge of their learning with the lecturers being facilitators rather than instructors controlling the learning process but with face to face support.
- made the DL learning materials was available to students in the UK for *resource-based* learning.
- helped to support teach the very large modules and reduced the cost of delivery in the UK.
- was successful both in retention and academic achievement for DL and UK students.

Other achievements of the project include

- a substantial contribution to the establishment of MU in the Far East especially in the delivery of franchised programmes.

[9] CLD annual report on the usage of OASiS 2004/5 Semester 1,2.

- the development of remote operational and management procedures for programmes according to the British Educational system. Many of the practices introduced by the GC team have been adopted university-wide and this made it easier to establish the first overseas MU campus in Dubai.
- two satisfactory QAA audits.

Like all projects, the GC project came to an end. Middlesex University has established firm franchise partnerships and robust mechanisms for managing them, some hundreds of students have successfully graduated, and several e-learning professionals have enhanced their career portfolios. When combined with sufficiently committed and capable institutional oversight, the GC project philosophy and the pedagogical methods it adopted can be recommended to anyone prepared to put their faith in blended learning as a vehicle for transporting educational opportunity outside the classroom.

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