Learning excellence

26 International Case Studies

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International case study authors: Erica Gillard, Madeleine Green, Dennis Murray, Jamil Salmi and Andrée Sursock

In partnership with: CHEMS Consulting
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Editor’s note

No contact details for case study authors or contributors have been included within this report, should you wish to get in touch with authors or case study institutions, please contact enquiries@heacademy.ac.uk.

The HEA has not attempted to homogenise the terms used to describe people from different ethnic groups because the various nations represented in the following case studies may use differing terms.
## Acronyms

Acronyms that appear only once in a case study (and are explained there) are not included here.

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<td>AAC&amp;U</td>
<td>Association of American Colleges and Universities</td>
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<td>ABET</td>
<td>US Accreditation body for programmes in Applied Science, Computing, Engineering and Engineering Technology</td>
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<td>ACPA</td>
<td>American College Personnel Association</td>
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<td>ADP</td>
<td>Academic Development Programme</td>
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<td>ALTC</td>
<td>Australian Learning and Teaching Council</td>
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<td>ARWU</td>
<td>Academic Ranking of World Universities</td>
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<td>AUQA</td>
<td>Australian Universities Quality Agency</td>
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<td>BSL</td>
<td>Blended Synchronous Learning</td>
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<td>CAFCE</td>
<td>Canadian Association for Co-operative Education</td>
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<td>CARS</td>
<td>Center for Assessment and Research Studies</td>
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<td>CBD</td>
<td>Central Business District</td>
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<td>CBE</td>
<td>Competency Based Education</td>
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<td>CCR</td>
<td>Co-Curricular Record</td>
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<td>CECA</td>
<td>Co-operative Education and Career Action</td>
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<td>CHE</td>
<td>Council of Higher Education</td>
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<td>CHEA</td>
<td>The Council on Higher Education Accreditation</td>
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<td>CHED</td>
<td>Centre for Higher Education Development</td>
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<td>COL</td>
<td>Centre for Online Learning</td>
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<td>DHET</td>
<td>Department of Higher Education and Training</td>
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<td>ECTS</td>
<td>European Credit Transfer System</td>
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<td>EDU</td>
<td>Education Development Unit</td>
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<td>EE</td>
<td>Experiential Education</td>
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<td>ERC</td>
<td>European Research Council</td>
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<td>EUA</td>
<td>Association of European Universities</td>
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<td>FYCP</td>
<td>First Year Curriculum Principles</td>
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<td>FYE</td>
<td>First Year Experience</td>
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<td>GLO</td>
<td>Guttman Learning Outcomes</td>
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<td>HEADS</td>
<td>Higher Education Access and Development Services</td>
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<td>HEAR</td>
<td>Higher Education Achievement Record</td>
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<td>HRD</td>
<td>Human Resource Development</td>
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<td>iCAS</td>
<td>Interactive Collaborative Assessment System</td>
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<td>ICTS</td>
<td>Information and Communications Technology Service</td>
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<td>Acronym</td>
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<td>ILO</td>
<td>Institutional Learning Outcomes</td>
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<td>INQAAHE</td>
<td>International Network for Quality Assurance Agencies in Higher Education</td>
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<td>IoC</td>
<td>Internationalisation of the Curriculum</td>
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<td>IS-IT</td>
<td>Interdisciplinary Scenario Inquiry Tasks</td>
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<td>MECESUP</td>
<td>Higher Education Quality and Relevance Improvement Programme</td>
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<td>NASPA</td>
<td>National Association of Student Personnel Officers</td>
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<td>NIBRT</td>
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<td>NVAO</td>
<td>The Dutch Flemish Accreditation Organisation</td>
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<td>OLT</td>
<td>The Office of Learning and Teaching</td>
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<td>PBL</td>
<td>Problem Based Learning</td>
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<td>PLO</td>
<td>Programme Learning Outcomes</td>
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<td>PPL</td>
<td>Problem-oriented Project Learning</td>
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<td>QS</td>
<td>A leading global ranking scheme for universities</td>
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<td>SADC</td>
<td>Southern African Development Community</td>
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<td>SCHEV</td>
<td>State Council of Higher Education for Virginia</td>
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<td>SETA</td>
<td>Sector Education and Training Authority</td>
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<td>SI</td>
<td>Supplemental Instruction</td>
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<td>SSA</td>
<td>Student Success Advocate</td>
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<td>STEM</td>
<td>Science Technology Engineering and Mathematics</td>
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<td>THE</td>
<td>Times Higher Education</td>
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<td>TNE</td>
<td>Trans National Education</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<td>WICHE</td>
<td>Western Interstate Commission for Higher Education</td>
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Glossary

Capstone experience:
A capstone experience may take the form of a seminar, project, paper or thesis and is a culminating experience that provides students with an opportunity to integrate various skills and knowledge acquired through their undergraduate experience and especially their academic major.

Co-curricular learning:
This refers to activities, programmes and learning experiences that complement, in some way, what students are learning in their academic studies, for example, experiences that are connected to or mirror the academic curriculum.

Co-op education:
Cooperative education combines periods of classroom learning with periods of supervised work experience that is an integral part of the academic programme.

General education:
In US institutions, general education refers to a portion of the curriculum (generally between one and two years of coursework) that provides broad foundational skills and knowledge. General education is designed to enable students to develop such skills as critical thinking, quantitative reasoning, effective writing and speaking. Some institutions address general education through a distribution model (required courses in the humanities, social sciences, and natural sciences) and others through a core curriculum (a sequence of courses taken by all students).

Rubrics:
In the US the term rubric means a scoring guide that specifies the criteria, or characteristics, that student work should exhibit and describes specific quality levels for those criteria.

Scaffolding:
Scaffolding is the support given during the learning process which is tailored to the needs of the student with the intention of helping the student achieve his or her learning goals.

Service learning:
Service learning is a method of teaching that combines classroom instruction with meaningful community service. This form of learning emphasises critical thinking and personal reflection while encouraging a heightened sense of community, civic engagement and personal responsibility.

Students in transition:
This term covers the transition of students from secondary to higher education, but is often used more widely to describe the total learning experience in a student’s career at one institution.

Technikons:
Technikons in South Africa were originally designed to offer vocational training at tertiary certificate and diploma levels. They were later granted the right to offer BTech degrees, but still retained their vocational origins. In the restructuring of South African higher education post-apartheid, some technikons were merged with traditional universities to become what were called comprehensive universities.
Section A. New approaches to assessing learning
Brandman University, Irvine, California, US
Madeleine Green
https://www.brandman.edu/

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Context

Brandman University is a non-profit regionally accredited institution that is part of the Chapman University system. It was founded as Chapman University College in 1958 to offer continuing education and in 2008 it received accreditation as a freestanding institution. Brandman offers blended and online degrees and has 25 campus locations, including six military bases, in California and Washington State. Around 88% of the university's 7,800 students are at least 25 years old. Roughly half (46%) are low-income students, eligible to receive federal grants for low-income students called Pell Grants¹, and 43% are members of minority groups. Most are transfers from community colleges. It has about 80 full-time faculty and 1,700 adjunct instructors.

Brandman offers one associate degree, 12 undergraduate degrees, 13 Masters, and two Doctoral programmes, as well as 18 credit-bearing certificate programmes. All on-campus courses are delivered using a blended model of face-to-face instruction and independent and collaborative online learning. The University offers courses in a trimester basis for the academic year. Each trimester is comprised of two eight-week sessions. Students normally take one to two courses per eight-week session. Brandman also offers online competency-based programmes.

Description of the innovation

A new curriculum and assessment process was launched in 2008, when Brandman became a separately accredited institution. An online competency-based programme was launched in October 2014 with institutional funding.

*The Curriculum:* Brandman began a redesign of its curriculum in 2010, incorporating the American Association of Colleges and Universities' Essential Learning Outcomes² and the Degree Qualifications Profile, a US version of a qualifications framework sponsored by the Lumina Foundation³. The curriculum is organised around three sets of learning outcomes: in general education, and at the institutional, and programme levels. The learning outcomes for the general education programme are grouped under three headings: Basic Skills (written communication, quantitative reasoning, and oral communication); Breadth Requirements (in the humanities, natural sciences, social sciences) and Liberal Education Foundations.

The Institutional Learning Outcomes articulate the competencies that all graduates should master. The five competencies are:

> applied learning;
> innovation and creativity;
> civic engagement;
> global cultures, and
> integrated learning.

¹ The Pell Grant programme is a federally funded means tested need-based financial aid programme for low-income students.
² http://www.aacu.org/leap/essential-learning-outcomes
These competencies are achieved through the core required courses in each undergraduate major. Embedding these competencies in the required course major ensures that students who are transferring into the upper division achieve them. Brandman developed rubrics (grading scales) to assess the five institutional learning outcomes (ILOs) based on the work of AAC&U’s ‘VALUE’ rubrics.

Each programme also defines a set of learning outcomes which focus on necessary skills for success in academic and work settings, known as disciplinary skills requirement. For each undergraduate degree programme, faculty complete a ‘curriculum map A’ aligning each of the competencies with required core courses in the major. All majors also complete a ‘curriculum map B’, which indicates a key signature assignment that represents the targeted competency. These signature assignments are part of the regular coursework for students, and are also collected to be used for programme assessment and improvement.

Assessment: Brandman uses course-embedded assessments to measure achievement of student learning outcomes. These assessments may be projects, research papers, tests, etc. This approach provides direct evidence of student learning at both the course and the programme level. By using course-embedded assessments to assess for programme learning outcomes, faculty can authentically measure student learning while aligning course learning outcomes to programme learning outcomes. There are assessment plans for all degree programmes that include programme learning outcomes, signature assignments, course number and title of the signature assignment, methodology and the means of assessment.

Using course-embedded assessments also enables the University to share assessment processes with adjunct faculty, set clear expectations for student work and learning, and target curriculum interventions. The process includes the development of clear and assessable learning outcomes at the course and programme level and alignment of the curriculum with course learning outcomes and programme learning outcomes (PLOs) through the use of curriculum maps. The curriculum maps denote the level of learning as introductory (I), practice (P) or mastery (M). Signature assignments are identified at the mastery level for each PLO and graded with a rubric designed and developed by the faculty. Data collection and summary is aided by the use of two electronic systems: Turnitin/GradeMark and LiveText. These software tools house the rubrics for grading assignments that are built and accessed by the faculty. In addition, LiveText ‘keeps’ student work that can be accessed at a later time, if needed for professional accreditation requirements or visits, regional accreditation, or to allow faculty to do a ‘deep dive’ on students’ work for further analysis. Brandman’s Assessment Office collects assessment data from the systems and provides aggregated and disaggregated data for programme assessment.

The five institutional learning outcomes are assessed over a three-year period (e.g., one to two each year) and the general education team, composed of cross-disciplinary faculty, review the data and make recommendations for improvement in curriculum, signature assignments and/or the assessment tool.

Programme assessment: A programme assessment is completed for each academic programme offered by the University. The majority of programmes are on a biannual assessment schedule, with the exception of teaching credential programmes and Nursing programmes which require annual assessments to meet regulatory standards or professional accreditation.

Using a rubric, student learning for each PLO is assessed in the signature course-embedded assessment. The results are aggregated and disaggregated for review and analysis by faculty. Student learning outcomes are reviewed in the aggregate to provide information on the extent to which students are achieving the learning outcomes. Feedback to students is given in the courses on the basis of signature and other assignments. Data collection is ongoing and all-inclusive with data harvesting occurring at the end of each session.

The Assessment Office prepares a programme assessment template for the faculty to analyse, reflect on and share with stakeholders and adjunct faculty. The programme assessment template includes data on student learning (e.g., assessment data for PLOs aggregated and disaggregated by delivery model and campus location), graduation and retention data, student opinion survey and course quality. The Assessment Office holds webinars and teleconferences with the faculty to review the template, discuss next steps (e.g., stakeholder feedback summary form completion and action plans) and address questions. The faculty analyses student learning data noting overall strengths and weaknesses by delivery model and campus location.

A review of programme assessment data is conducted by the full-time faculty, adjunct faculty and stakeholders such as employers and/or experts in that particular discipline. Each major has identified stakeholders who serve on advisory boards. The review and analysis by each group are compiled by the full-time faculty into a summary report delineating programme strengths and areas of improvement. The faculty develops an action plan to address
identified issues targeting improvement of student learning. Six months to a year later, faculty review the action plan and update its status. At the one year mark, faculty will indicate the status of the implementation of the suggested change such as a curricular change of adding more case studies or increasing the writing requirements or changing the learning activities in the course. When the programme is assessed again in two years, data are collected and analysed to see if the change resulted in improved student learning.

**Programme review:** Programme reviews, conducted on a six-year cycle, engage faculty, staff and students in reflection on the quality of programmes and assessment of the alignment of the programme with Brandman’s mission. The process includes four primary elements: 1) *Programme assessment plan.* A planning document stating the programme’s mission, goals, learning outcomes and methods for achieving them. The plan is the basis for evaluations in the *Annual Programme Assessment Report,* which each programme develops based on a template and is also used in the programme assessment process outlined above. 2) *Self-study:* an assessment by the faculty of the programme’s current state, based on institutional and programme data. 3) *Summary of findings:* a critical analysis report written by two External Review Committee members that is based on a review of the programme’s self-study, and an e-site visit with faculty, staff, students and administrators. 4) *Action plan:* a documented action plan written by the faculty and Dean of the school that details the programme interventions aligned to the self-study findings, timeline for implementing changes and budget implications to be addressed through continued reflection and data and evidence gathering during the interim years of the programme review cycle.

**Competency-based Bachelor of Business Administration (BBA):** The University currently offers one online competency-based programme, and is developing another one. Unlike its other programmes, and almost all other US higher education programmes, Brandman’s BBA does not use credit hours or completion of a set of courses as the milestones for awarding a degree. Students proceed through the online modules at their own pace and demonstrate, through assessments, that they have acquired a set of competencies required for the degree, including general education and the major. The degree includes 13 competencies in General Education, 34 core Business competencies and nine to 12 competencies in the student’s area of emphasis. Brandman is one of a handful of US institutions that is recognised by the US Federal Government to use ‘direct assessment’ (rather than the conventional completion of credit hours) to enable students to receive federal financial aid. (Note: Western Governor’s University (see pages 70-3), which is also competency based, translates competencies into credit hours for purposes of participation in the federal financial aid system.)

**Distinctive features of the innovation**

The Brandman approaches, including blended learning offered at the 25 campuses, fully online programmes, and its competency-based programme, address the issue of flexibility for students and rigorous assessment. In the credit-hour approaches of blended and fully-online learning, Brandman has developed a highly coherent and aligned approach of institutional and programme learning outcomes and an assessment process that reinforces this alignment and creates an ongoing feedback loop for programme improvement. Its use of course-embedded assessments creates efficiencies and allows for authentic assessment of student learning. This is achieved in the context of an institution with 25 teaching sites and a significant proportion of adjunct faculty, which provides a mechanism for quality assurance and consistency among the campuses.

The online competency-based programme allows students to learn at their own pace and demonstrate mastery through an assessment process. The competencies are aligned to employer skills and its affordable annual undergraduate tuition of US $5,400 that includes instructional materials and support from full-time faculty members (graduate tuition is higher and varies by programme).

**Driver for the innovation**

Brandman addresses the national challenge of expanding affordable, accessible and high quality opportunities that meet the needs of students and employers.

**Funding for the innovation**

The redesign of the curriculum in 2010 and the assessment process were supported by institutional funding. Faculty were provided with course releases to conduct the work or provided with financial stipends.
Embedding the innovation

The biggest challenge is the ‘back office’ or business processes. This includes the integration of the student information system with the financial aid process and business office (e.g., disbursement of funds). In addition, the admissions process, transcription and learning management system must be integrated. All of these elements need to work in concert as students can start the programme on each Monday (resulting from many terms in process at the same time) and individual students work at different paces.

The development of learning outcomes at the institutional and programme level and the assessment process were created to be institution-wide. The first online competency-based programme has led to the development of others in progress.

Impact and success of the innovation

Assessment of the blended learning programme focuses on student learning, curriculum relevancy and student success, among other factors. Surveys such as student satisfaction, course evaluations, alumni survey data as well as adjunct instructor feedback, full-time faculty feedback, stakeholder feedback and student feedback are used for these assessments.

The competency-based programme is just starting and has not yet undergone a formal evaluation. However, for the programme to be approved by the regional accreditor and the US Department of Education, the university developed an assessment plan to collect pertinent programme and student data such as level of student engagement, assessment results on the formative and final (summative assessments), pace of student work, student satisfaction, faculty recommendations and feedback, graduation and retention rates, etc. In addition, the competency-based BBA programme will be compared to the credit-hour programme (online and blended) in the targeted areas of programme learning outcomes, graduation and retention.

References

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Context

The University of Notre Dame (UND) is a religiously affiliated competitive private research university in Indiana with 12,000 students, of whom 8,400 are undergraduates. More than 98% of first-year students are typically retained for their second year, and 96% graduate with their entering cohort.

Description of the innovation

This innovation focuses on the use of e-portfolios as an advising and learning assessment tool. The e-portfolio initiative began in 2012-13 after a faculty committee initiated by the Provost’s Office was convened to prepare for the upcoming accreditation visit. The committee decided that, if UND were going to use e-portfolios for institutional evaluation purposes, they must be balanced with authentic and student-centred assessment. As a result, they designed an optional programme for first-year students to use the e-portfolio in the advising process. The e-portfolio was intended primarily as a self-assessment developmental tool that would help students deepen their engagement in learning and plan and reflect on their academic choices, enabling students to take more ownership of their academic plans and trajectories. Pre-advising meeting questions and mid-year and end-of-year reflection questions were offered, designed to prompt students to think about their learning, strengths and weaknesses prior to conversations with their academic advisors. Advisors also provided comments using the e-portfolio platform. This ‘blended model’ of advising combines face-to-face advising with synchronous and asynchronous technologies and communication and ‘flips’ the advising process with e-portfolios, that is, the advising sessions are preceded, rather than followed, by student reflections on their goals and learning. E-portfolios have enabled UND to improve assessment of student development by having first-hand evidence of student reflections on their learning. The University is now adding a one-credit, two-semester course for first year students focusing on personal development that will incorporate an e-portfolio.

The pilot year was a great success, with a 71% voluntary participation rate. The Provost’s Office gave the initiative strong support by signing a multi-year contract for a platform that would enable the entire student body to have e-portfolios. The initiative also received support from a National Science Foundation STEM retention grant early on, which partially funded a data science postgraduate student to help research the quantitative and qualitative data mining potential of e-portfolios for next generation learning analytics. It currently is supported by the Office of Information Technology to fund support personnel, and the Centre for Teaching and Learning for personnel who help with design and consultations.

The e-portfolio was also used to assess student achievement of the learning objectives of the First Year of Studies (the official collegiate home for first year students, who then choose a college at the end of the first year). The assessment committee mapped these objectives onto the University’s learning outcomes, and students submitted assignments to their portfolios. A random sample of student e-portfolios was generated, and rubrics were created to analyse the datasets. Reviewers scored the samples and made recommendations for programme improvement based on their analyses of the scores.

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4 A rubric is a scoring guide that specifies the criteria, or characteristics, that student work should exhibit and describes specific quality levels for those criteria.
There have been a number of spin-offs from the first initiative. Three of the five undergraduate colleges are now using the e-portfolio for advising second year students. At the end of the third year, 6,000 out of 8,000 students were using e-portfolios. In August 2015, UND had reached its goal to have every undergraduate student with at least one e-portfolio. Some students have multiple portfolios (e.g., advising and disciplinary). There are 13,000 portfolios in existence.

UND has also launched the Evidenced Based Badges (E2B2) initiative to pair digital badges with e-portfolios. In June 2015, E2B2 was awarded the national Campus Technology’s Innovator’s Award. According to the University website, this “is an initiative that encourages students to showcase their skills and accomplishments visually on their e-portfolios, while establishing a standard system for verifying and quantifying these formal and informal achievements and skills.” The badges capture co-curricular learning rather than classroom learning\(^5\). Badges can document learning and accomplishments in areas such as service learning and pre-medical studies, or to document awards, such as the Dean’s list.

**Distinctive features of the innovation**

The high rate of voluntary adoption of the e-portfolio in the launch year is notable, as are the multiple uses of the e-portfolio (advising, curricular and co-curricular learning contexts). The provision of digital badges is also a distinctive feature.

The use of e-portfolios has helped address the challenge of balancing assessment of learning (institution-centred summative evaluation) with assessment for learning (student-centred formative feedback). They have also helped address the challenge of advising: how does an institution transform the advisor’s role from completing forms and conducting paperwork transactions to helping students develop a passion for education and an understanding of its purposes?

**Driver for the innovation**

This initiative began with the accreditation process and the need to do a better job with closing the assessment loop (that is, applying what is learned from the analysis of the assessment data to programme or curricular improvement). The advising e-portfolio was developed by a faculty group, and was student-centred, having students take more ownership of their academic plans and trajectories.

**Embedding the innovation**

A challenge was scaling up personnel support (both technical and instructional design) to ensure that end users were getting help designing and implementing the e-portfolio easily and effectively.

The pilot concerned advising only. The e-portfolio has been adopted by three of UND’s five colleges for use beyond first year advising. Other programmes using e-portfolios are Study Abroad and Service Learning. As noted above, in August 2015, UND reached its goal to have every undergraduate student have at least one e-portfolio.

**Impact and success of the innovation**

One measure of success is the rapid spread of the use of e-portfolios throughout UND. Also, the Engineering programme has used analytics to measure student engagement in learning and to predict which students were likely to drop out of the Engineering programme to choose other colleges. This information has led to the design of interventions to retain students in the Engineering programme. In the two-semester Introduction to Engineering course, all students create an e-portfolio which includes student reflections on their progress towards Engineering skill areas; reflections on the completion of each course-required project; and reflections on eight Engineering events outside the required course. The assessment included the number of times students logged into the e-portfolios system, pieces of evidence included and number of hits. Faculty raters reviewed student e-portfolio entries for one semester, using a rubric that rated student interest in Engineering. Findings were that students who demonstrated more engagement through the use of their e-portfolios were more likely to persist.

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\(^5\) The co-curriculum refers to activities, programmes and learning experiences that take place outside the classroom and complement the formal academic curriculum.
James Madison University, Harrisonburg, Virginia, US

Madeleine Green

http://www.jmu.edu

http://www.jmu.edu/assessment

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Context

James Madison University (JMU) is a public institution enrolling approximately 21,000 students of whom 19,500 are undergraduates. It offers 72 undergraduate programmes, 40 Masters programmes, and eight Doctoral programmes.

Description of the innovation

JMU has made comprehensive data-driven approach to assessment student learning a University-wide priority, with its Center for Assessment and Research Studies (CARS)\(^6\) serving as a ‘one-stop shopping’ resource. The innovation has had visibility through several national awards, including the National Association of Student Personnel Officers (NASPA), The Council on Higher Education Accreditation (CHEA) and the American College Personnel Association (ACPA).

CARS’ mission is to provide quality assessment service to the University; provide applied graduate training in both assessment and measurement; increase the use of innovative technology in assessment practice; increase the rigour of measurement and statistical techniques used in assessment practice and to produce quality scholarship in assessment and measurement. CARS coordinates assessment and supports assessment at several key points during a student’s undergraduate career: 1) during summer orientation for all entering freshmen; 2) mid-undergraduate point assessment; 3) graduating senior assessment in the academic major(s); and 4) regular surveys of alumni.

Assessment work at JMU is guided by the Assessment Advisory Council, which advises the Provost and Senior Vice President for Academic Affairs regarding procedures and practices of assessment across the campus. Members are expected to report back to their constituents on current JMU assessment practice and policy.

Additionally, JMU offers PhD, Masters and graduate certificate programmes in assessment and measurement\(^7\).

Assessment Day: Twice a year, CARS coordinates Assessment Day, a University-wide effort to collect data to assess intellectual and personal development. These data are used for programme assessment and improvement. All JMU students are required to participate in Assessment Day. Students are tested first as incoming first year students and then again when they have earned 45 to 70 credit hours, typically their second year. Transfer students also participate in JMU assessment. All students are tested on their knowledge in at least one of the general education areas of communication, History, Science, Mathematics, Socio-cultural Development, Health and Wellness, or Fine Arts. In addition, students may complete tests measuring critical thinking, cultural knowledge, intellectual and personal development. The assessment results are reported within JMU and to external audiences. Internally, they are used by faculty committees and administrators to improve programmes and instruction. Externally, JMU releases findings on student performances on six core competencies in the general education

\(^6\) https://www.jmu.edu/assessment/  
\(^7\) http://www.psyc.jmu.edu/assessment/
areas. These results are reported to the state coordinating body for higher education, the State Council of Higher Education for Virginia (SCHEV).

Assessment of general education: The JMU general education programme is organised in five clusters of courses: Skills for the 21st Century, Arts and Humanities, the Natural World, Social and Cultural Processes and Individuals within the Human Community. All students must take the three courses comprising Cluster One: Skills for the 21st Century and pass an information literacy competency requirement during their first year. Students acquire the information literacy skills through online tutorials.

Since the general education programme’s inception in 1997, CARS faculty have provided support for the development and refinement of cluster goals and objectives as well as the instrumentation by which student learning in achieving these goals is assessed. CARS faculty are assigned as liaison and active members to each Cluster Committee and the General Education Council. Instruments are developed by JMU General Education Programme faculty in collaboration with faculty from CARS. Each instrument is designed to measure the specific learning outcomes of its area and cluster.

Assessment of the majors: Every undergraduate and graduate programme at JMU has a designated Assessment Coordinator and often a committee. These individuals work in partnership with the Programme Assessment Support Service (PASS) located within CARS to continuously review and refine their assessment design and methodologies, and review the interpretation and use of results.

All programmes at JMU are expected to collect data at least annually on their graduating students and to report their assessment findings as an integral component of their annual reports. Many academic programmes use the Spring Assessment Day to administer assessments of student learning; others embed assessment activities in keystone or capstone courses. Many diverse strategies and assessment prompts are used at JMU, including locally developed, regional and national comprehensive exams; online information-literacy/library skills assessments; portfolio assessment; performance assessments; essay/term paper review; oral comprehensive exams; external or on-site supervisor ratings; exit interviews, surveys and focus groups. In order to ensure that assessment instruments fit learning outcomes in the major, 90% are locally designed. The University reviews academic programmes on an eight-year cycle. The assessment design and use of results is an integral component of that programme review system, and CARS faculty meet with each Academic Programme Review external team specifically to discuss its viability and utility.

Alumni survey: Alumni are surveyed in five-year cycles, generally coinciding with a department’s programme review or external accreditation visit. The survey includes general questions common to all programmes as well as a set of questions specifically designed by major departments. The major-specific section of the alumni survey is mailed to every programme major who graduated between one and six years previously, creating a five-year cohort. When a programme completes a five-year cycle, a new cohort begins. This design allows programmes to explore trends in student perceptions to corroborate and validate curricular, policy and programmatic changes. CARS assists the Office of Institutional Research in coordinating this effort and maintains information related to the University’s alumni surveys.

Programme Assessment Support Service (PASS) and Student Affairs Assessment Support Service (SASS): PASS provides ongoing consulting services and assessment resources to support the assessment initiatives of all academic degree programmes. PASS is staffed with advanced graduate students (usually Assessment and Measurement PhD students) who assist programme assessment coordinators and committees with their assessment activities such as writing clear and measurable goals, identifying appropriate assessment instruments and analysing data. PASS also provides workshops and web-based tutorials and videos. SASS fulfills the same function for all student affairs programmes at JMU.

Assessment Instruments: Over the years, CARS has developed a number of standardised tests, performance assessments and rubrics for use in their assessment initiatives. The Student Opinion Scale, a self-report tool, examines student motivation to perform well on assessment tasks. The instrument, validated over 12 years, is available for free. Others, such as the Information Literacy Test, The Natural World Test (9th edition), Quantitative Reasoning Test, the Scientific Reasoning Test, and the United States Society and Politics are available for purchase through an independent company, Madison Assessment, LLC.

Assessment Fellows: The JMU Assessment Fellows programme is an opportunity for JMU faculty and staff to work with CARS on an assessment project for their department. Fellows must agree to be in residence at CARS for a specified period of time during the second summer session. Fellows work with the CARS faculty and Graduate
Assistants on a project to be decided in conjunction with their home departments and Deans. Assessment Fellows are provided with a stipend.

**Distinctive features of the innovation**

JMU’s assessment initiatives have evolved over 25 years, and are nationally recognised as a model of scholarly rigour and pervasiveness. All programmes participate in assessment and have a designated assessment coordinator who serves as liaison to CARS. CARS provides a focal point as well as expertise to support assessment at JMU.

**Drivers for the innovation**

During the mid-’80s, assessment in higher education was a growing national conversation. The Commonwealth (State) of Virginia sponsored a Fund for Excellence initiative, inviting universities to explore assessment on their campuses. JMU was one of the first to actively engage in this work. The State Council of Higher Education for Virginia (SCHEV) helped with the first funding for an Office of Student Assessment on the JMU campus, and that office has grown over the last 25 years. Thus, there was significant legislative interest in assessment that resulted in several mandates for assessment in general education, academic majors, at-risk students, alumni, and online educational efforts. JMU has continued to benefit from consistent and substantive administrative support.

**Funding for the innovation**

Over the years, JMU and CARS have continued to benefit from external funding from SCHEV, the US Department of Education, and the National Science Foundation. However, this external funding has been sporadic and for specific projects, hence the University has provided consistent financial support over the last 25 years. This university support has increased as a return on investment has been realised.

**Barriers to implementation**

Assessment can take real commitment and investment to foster quality work. Faculty members were not immediately receptive to assessment work, often seeing it as an audit or an exercise in compliance. Requirements of the state and regional accreditor to undertake assessment provided leverage for the assessment initiative. Contributors to success were widely shared commitment to student learning and success, the scholarly approach taken by CARS, the support of the top administration, and the scholarly approach taken to assessment. The existence of the Assessment Fellows Programme provided opportunities for faculty and staff to engage deeply with assessment in a programme that also conferred prestige.

**Embedding the innovation**

Assessment is mandated across the University. All academic and administrative departments had to gather assessment data and report each year. Early on, each unit could report using any format they wished. Over time, CARS, in collaboration with Deans and faculty members, developed an assessment progress template (APT)\(^8\) to guide the assessment reporting structure. All assessment reports are now evaluated each year using a rubric. Deans nominate faculty from their college to come to CARS for seven to eight days for training on how to use the rubrics of the assessment progress template. They are teamed up with graduate students in CARS. CARS staff works hard on building rapport with Deans and faculty members to collaborate on all assessment efforts.

**Impact and success of the innovation**

For the last seven years, each academic degree programme completes an annual online report on assessment, using the assessment progress template. This reporting system is the basis for the meta-evaluation of JMU’s assessment practice. The reports are rated annually, as described above, by trained raters, who provide ratings and feedback to various campus stakeholders. The ratings are stored in a database, and can thus be disaggregated to provide summaries at the institution, college, department and degree programme level. All programmes receive a customised feedback report that outlines what they did well in addition to suggestions for improvement. Faculty raters established a standard for exemplary assessment practice that has been used to identify programmes with distinctive assessment. These criteria are also used to nominate and determine the

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\(^8\) [https://www.jmu.edu/assessment/_files/APT_Rubric_sp2015.pdf](https://www.jmu.edu/assessment/_files/APT_Rubric_sp2015.pdf)
Provost’s Excellence in Assessment Award each year. This meta-evaluation has provided considerable evidence of the impact of the meta-evaluation on assessment quality. The number of programmes achieving ‘exemplary status’ (an overall rating of 3.4) steadily rose from one in 2008-09 to 64 in 2013-14.

A consistent challenge for all institutions is the use of assessment data to improve not only the assessment process, but also to demonstrate that programme changes result in improved student learning. JMU also faces this challenge. A finding of their meta-assessment was that programmes were improving their assessment process but not proportionally getting better at using their assessment results to improve student learning. This finding resulted in three strategies:

1. JMU clarified the definition of learning improvement, to mean “assess, effectively intervene, and reassess,” whereas the previous definition used to refer only to programme modification as a result of assessment. They updated the rubric to reflect this refined definition.
2. The finding led to the realisation that the assessment office was not providing support for learning improvement, although the JMU Center for Faculty Innovation, the faculty development office, was supporting individual faculty with curriculum and pedagogy. Several initiatives were put into place to bridge the work of these two offices.
3. Improvement of learning was incorporated into the strategic plan, with a target of five programmes meeting the definition of learning improvement in Strategy 1.

All academic programme assessment reports are evaluated using a 14-point rubric pertaining to all components of the learning assessment cycle. One of the rating points is the extent to which the College has used the results of the assessments for programme improvement. The ratings from the assessment reports have allowed JMU to allocate resources to better assist faculty with their assessment work. The University identified areas of weakness and modified its rubric to better monitor these areas.

**Additional information**

Of primary importance is the means by which confidentiality of subjects and their responses are maintained. At JMU ID numbers are systematically collected; they are absolutely necessary to assure student participation and to link student performances with student course-taking experiences and grades. While JMU IDs are collected, individual students are not the primary unit of measurement. The analyses are primarily concerned with programme evaluation; therefore, the analyses focus on groups of students. For example, when analysing data for general education, an analysis might explore relationships between performances on a test instrument with grades in particular courses. Individual students are never identified or reported; further, only groups larger than 20 will be used for any analysis. Assessment data are archived on protected network servers that are password protected. Access to this server is allowed only to those authorised by CARS.

Students do get individual feedback on selected tests and are informed about how they compare to others on the tests.
Section B. Ensuring graduates are employable

International Institute for Water and Environmental Engineering (2iE), Burkina Faso

Erica Gillard

http://www.2ie-edu.org/en/

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Context

The International Institute for Water and Environmental Engineering (2iE) has applied a model of social innovation through entrepreneurship to create quality jobs and develop lasting solutions to social issues, while boosting national economies. Its goal is to create employment opportunities for young Africans in areas that are important for Africa’s development. Areas of expertise are Water and Sanitation, Energy and Electricity, Environment and Sustainable Development, Civil Engineering and Mining, and, as cross-cutting themes, Management and Entrepreneurship. 2iE Engineering degrees are accredited by the French Accreditation Body for Engineering Programmes (Commission des Titres d’Ingénieur).

2iE has 2,000 students of 27 nationalities studying on-site in two campuses; there is residential accommodation for 1,800 students. There are an additional 1,000 students of 36 nationalities studying by distance education. Of the enrolled students, 40% come from the host country, Burkina Faso, and the remaining 60% come from Central and West Africa, mostly from French-speaking countries.

2iE was founded in 1969 by 14 West and Central African countries as a political commitment to development. From 1968 to 2006, the two founding schools - Rural Equipment Engineering School (EIER) and Rural Equipment and Hydraulic Technicians School (ETSHER) - trained more than 3,000 engineers and senior technicians in the areas of Civil and Hydraulic Engineering.

The current non-profit association was created in 2006 in order to avoid difficulties with late and non-payments by member states. The current financial model draws from several sources, including student fees and donors. 2iE is supported by several international partners and has a Headquarters Agreement with Burkina Faso. This agreement allows the Institute to benefit from a privileged status as a diplomatic enclave, which facilitates the intake of students and researchers from a variety of countries. Since 2006, it has trained 5,000 students.

Its goal is to train entrepreneurial graduates in the context of vocational training seen as lifelong learning. To this end, the Institute attempts to meet the needs and constraints of different types of learners. Training is flexible and often tailor-made; support to alumni continues after graduation. A priority is to increase participation of women as staff and students. Elements of 2iE’s operation are as follows:

> Degree (Bachelor, Masters and PhD) or certificate programmes are offered both on-site or through distance education;

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9 This was 1,500 in 2013-14.
10 2iE has had protests about governance and administrative matters over the last few years. These appear to have been partially linked to conflict over and adjustments to changing governance models. Teaching and learning activities do not appear to have been affected.
Employability of students is promoted in other ways, in addition to the ones already mentioned:

- courses are bilingual (French-English), especially in the final years, although the majority of students are French-speaking;
- the academic year is flexible, with two different starting times for on-site learning;
- curricula are designed not only for full-time students, but also for companies and working professionals;
- there are theoretical and practical contributions in Engineering Sciences, but also in Managerial Sciences through an Integrated Business School;
- numerous workshops and courses are offered under the umbrella of continuing education.

Description of the innovation

The goal of 2iE is to produce entrepreneurial graduates who will find employment quickly after graduation or through self-employment. General knowledge of management, law, accountancy, entrepreneurship and innovation represent up to 30% of a student’s curriculum. In order to further develop a business culture, working professionals give regular input on subjects linked to innovation, green technologies and entrepreneurship. 2iE draws on an extensive network of professionals to review and develop curricula that meet current requirements of the profession and to support students. Development of entrepreneurial skills is further promoted via:

- The Junior Company which allows students to put theoretical knowledge into practice. It is targeted at companies and offers tailored services in the areas of Water, Civil Engineering, Mines, the Environment, Managerial Sciences, Information and Communication Technologies. Up to 2014, this had been managed and administered by students, but interest had fallen. From the start of the new academic year in September 2014, 2iE experimented with calling for applications from students to participate rather than through election of students by students. Apparently demand for the revitalised Junior Company is once again strong, but 2iE will monitor whether the governance model is appropriate.

- Entrepreneurship competitions are held each year to create businesses. These competitions allow students to have their leadership skills tested and their ideas challenged by a ‘jury’ made up of teachers, sponsors and company managers, but also to receive personalised coaching and advice from this jury. About 50 students apply each year and receive practical courses and coaching from January to June. Ten finalists are chosen to present their business project to a professional panel and, based on the deliberations and assessment of the panel, the three laureates could enter, if they desire to continue, the 2iE incubation programme.

- Students are encouraged to submit projects to the Entrepreneur Trail for business start-ups, which can lead to acceptance into the business incubator.

- The company incubator supports the creation of companies with strong social or environmental impact through providing scientific, managerial, legal and financial project management. The company incubator is open to anyone wanting to become an entrepreneur committed to sustainable development in Africa whether they studied at 2iE or not. In this way, 2iE also supports local initiatives. Twelve projects were supported in 2014. Projects under development and transfer of technology are also supported. At the end of a successful incubation period, start-ups can enter 2iE’s business nursery where they can benefit from further support and possible additional funding.

- Students and incubator companies have also competed in several international competitions including the Business Plan Competition of the Islamic Development Bank (three out of seven projects from 2iE went to the finals in December 2014). In addition to this, two projects won awards from an annual Global Social Venture Competition under the auspices of the University of California, Berkeley. In 2012 an agribusiness project won the Social Impact Award for a project to produce a nutritional supplement to meals from shea caterpillars to prevent malnutrition. In 2013 a team won the Global Social Venture Competition – the first team not from the American continent to win this award. The innovation was for a simple solution to produce mosquito-repellent soaps made from local and natural resources and affordable in any household budget. Two students reached the semi-finals in Paris in 2014.

Employability of students is promoted in other ways, in addition to the ones already mentioned:

- for 10 years an annual Business Enterprise Day has been organised. This is an employment forum where almost 1,500 attendees can meet about 100 company representatives. Companies present their jobs and products to students and students can apply for internships or jobs;
- two website pages: one with free access for partner companies where they can post adverts for internships or jobs; the other is for students, linked to a social network (DoYouBuzz) where they can perfect a curriculum vitae;
- promotion of managerial and entrepreneurial skills among students through:
– compulsory modules in Engineering Curricula (intellectual property, business plan elaboration and project management);
– an MBA for engineers to promote access to executive positions.

A network of professional partners has been built up over the years. There are 75 formal ongoing Memoranda of Understanding (MOUs) with the private and professional sector; more than 150 new partnerships have been created since October 2013 and more than 400 business contacts are contained in a database of global partners\(^{11}\). The partners collaborate in various ways (recruitment, scholarship funding\(^{12}\), R&D, research programmes, involvement in training, etc.). 2iE is formalising the management of these links within its organisational structure in a specific department (Technopole) created in 2012.

Collaboration with the business community has been crucial in developing relevant curricula. Since 2012, 2iE has been involved in what they call a ‘skills approach’ (similar to outcomes-based learning). Together with the help of professional engineers, 2iE developed about 25 ‘target skills’ for the three Engineering specialities offered. Ten of these have come to constitute the common ‘foundation’ of 2iE engineers’ capacities. Over a period of two years the entire teaching team was involved in inserting these target skills into the relevant curricula so that students of each speciality were provided with the required skills. 2iE believes that target skills are an efficient mechanism to keep discussions relevant to the world of employment that students will enter.

Now that the process of design is complete, the initiative is being monitored by a Human Resource Development (HRD) Circle which feeds into curriculum reviews and ensures quality. At least once a year this circle of professionals in water, the environment, energy, civil engineering and mines, meets to:

> anticipate competencies that are going to be required in the future;
> ensure that current graduates are meeting employers’ needs; and
> facilitate the placement and integration of graduates.

Membership of the HRD Circle is open as a voluntary and free service to academics as well as professionals in the field. Apart from helping to steer specialities, members also obtain benefits through access to workshops and conferences, and encouragement and help to get work published. The Circle produces an Annual Report.

From a survey of alumni in 2014, 182 alumni have agreed to act as mentors by supporting at least one student (some have offered to support up to four students). This is a substantial and commendable commitment given by 90% of the respondents. 2iE will set up alumni networks in countries where they do not currently exist, both to reinforce loyalty, and to offer ongoing support, such as coaching and job-search workshops, and access to the CV and other databases that have been established.

2iE sees itself as an ecosystem that combines training, research and business on-site to allow students and graduates to develop in a stimulating and innovative environment.

Since 2005, 2iE has been committed to increasing the participation of women in its institution. The average access rate to higher education for women is 6% in Burkina Faso and participation in scientific and technical areas is even lower; at 2iE female participation is 20% overall, 30% of first year and 15% of PhD enrolments. Teaching staff are 40% female. 2iE has initiatives such as Women’s Open Days for school and college girls to learn about work in engineering; it seeks sponsors for study grants for women, and ensures that its communication strategies focus on gender representativeness. In 2013 a Women’s Excellence Programme to enter Engineering programmes in Africa was opened in partnership with the Ecole Polytechnique Féminine (EPF) in France\(^{13}\). The Association of Women Students and Engineers also supports 2iE goals by aiming to develop women leaders and increasing their presence in the profession.

2iE also has an international focus, at a level unusual in African institutions. Its curricula are recognised in Europe and are compatible with the European frameworks. Each semester course unit is worth 30 ECTS\(^{14}\) and this can be transferred to and from European universities; a year’s course is worth 60 ECTS. Compatibility with ECTS was

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\(^{11}\) The companies range from local companies to multinationals such as EDF, Total, SNV, AngloGold Ashanti, WWF, Unicef, etc.

\(^{12}\) 1–4% of students each year have their tuition fees paid by businesses.

\(^{13}\) The EPF was founded in 1925 exclusively for women and admitted men only from 1994. Women now constitute 40% of its student body compared with 17% in other French Engineering Schools.

\(^{14}\) European Credit Transfer System
facilitated by a strict application of the Bologna Process. Students are able to carry out one to two study semesters abroad with academic and scientific partners spread over four continents. There are about 50-60 regular partners for student exchanges and about 20-30 students participate each year for a semester in another institution. About four to five students pursue their qualification in a partner institution for a common or double degree programme.

A separate programme exists to promote mobility with grants from among African Masters and PhD candidates allowing travel to partners in Africa, the Caribbean and the Pacific region.

Finally, 2iE has agreements with 20 partner universities throughout the world for co-supervised theses to promote international mobility and research. The thesis agreement is signed by two universities, and the candidate must meet the entry requirements of both institutions. Each institution designates a thesis co-supervisor. Tuition fees are paid to one university, but fees for laboratory maintenance for example are charged pro-rata to universities of the partnership. Most of these theses are financed from specific research programmes. In 2014-15, the PhD school hosted 43 students.

Distinctive features of the innovation

2iE is unusual in the way that it promotes several challenging priorities vigorously and successfully. The initiatives to promote entrepreneurship are extensive and varied and draw on professional networks to the benefit of both. Its graduates are employed soon after graduation (see the later section on impact and success). Its supporting networks of private and public professionals are well-established. Participation by women is comparatively good.

As a vision, 2iE wants to support objectives that bring added value to African economies. It also wants to address the gap between graduates who remain unemployed and firms complaining about lack of qualified professionals. By training in Africa, entrepreneurial engineers are equipped with a solid knowledge of local issues; by facilitating entrepreneurial skills, 2iE believes it helps to ‘enhance the emergence of the continent’. The network of professionals and activities provides support to local companies and initiatives.

By offering courses specialising in water, sanitation and the environment, 2iE offers a focus on key challenges for Africa. Of its graduates, 98% remain to work in Africa.

Finally, it does not overlook the importance of increasing the participation of women generally and in these fields in particular.

Driver for the innovation

2iE was established to meet ongoing political goals to drive development in core areas of importance to Africa. The original goal in 1969 was to train public servants to help to develop an agricultural infrastructure. There are now more fields of study, and a more diverse funding and governance model, but the objective remains the same, with a cross-cutting focus on sustainable development and the environment.

Funding for the innovation

Regular funders include the African Development Bank, the French Ministry of Foreign Affairs and International Development, the Swiss Cooperation Department and USAID.

World Bank support has been provided through different programmes (International Development Association until 2013) and 2iE is now one of the World Bank 19 African Centres of Excellence intended to share skills throughout Africa through collaboration. The incubator was first supported by the French Ministry of Foreign Affairs and is now supported by the Talloires Network15 based at Tuft University, Boston and funded by the MasterCard Foundation, among others.

For academic programmes and the promotion of entrepreneurship, 2iE is self-sufficient; for innovation and the incubator programme, there is not yet a sustainable economic model to fuel the system. 2iE envisages the creation of a revolving fund for start-ups, taking equity shares in the companies, or benefitting from a return on intellectual property in the form of patents. A critical mass has still to be attained to make this sustainable in the long-term.

15 http://talloiresnetwork.tufts.edu/yepi/
For the research activities, there is always a need to raise funds, to apply for projects and to develop partnerships for research. This is similar to all universities.

**Barriers to implementation**

2iE has not been very successful in recruiting English-speaking students. The World Bank is now granting some designated scholarships for students from Anglophone countries and this has resulted in around 20 students becoming enrolled in specialised Masters programmes.

For other students, it is compulsory to have B2 level (independent user) in English. Despite compulsory courses in English and a language centre equipped with computers and tutorials, some students leave 2iE without completing their chosen qualification because they have not passed the English courses required. For the next academic year, 2iE proposes to test students at entry and then require those below a defined level of competence to enrol for courses in the summer recess.

There was a dip in the rate of employment of new graduates in 2012 (explained in more detail below) which the Employment Committee thinks was related to some graduates preferring to wait for a job and a salary that they felt was commensurate with their qualification. Some business partners referred to unrealistic salary expectations among new graduates. In consequence, 2iE resolved to provide better information on the realities of the job market, especially in Africa where only the international groups can afford to recruit at international levels.

Following this dip, 2iE has introduced the following:

- creation of a directory of CVs available for potential recruiters\(^{16}\). So far, 229 CVs have been registered;
- creation of an online platform for companies to post offers of employment or internships and to make this available to students on the intranet\(^{17}\);
- a 20-hour module on training for job searching (since 2014);
- online tutorials for job search tools\(^{18}\)
- a survey in 2013 of every graduate over the years of 2iE’s existence as to their employment in 2013 to provide information in addition to the regular annual survey of the employment of each cohort (see below for discussion);
- student presentations on their career plans to a panel of HRD specialists. From 2014, around 30 students have taken part and received coaching from professionals.

These actions will now become an additional feature in the actions discussed earlier to promote the employability of students.

**Impact and success of the innovation**

The Employment and Enterprises Committee produces a substantial report twice a year to the Board of Directors. In it alumni are surveyed and the employment of graduates is tracked (see metrics below). Students compete successfully in international competitions.

Regular reviews of graduates are conducted via online surveys (six months and one year after graduation, although this was previously three months, six months and a year) to measure employment rates. Their consolidated employment rates between 2004 and 2012 were 77% after three months, 90% after six months and 98% after a year. There was a dip in July 2012 (the corresponding rates of employment were 66%, 76% and 85%). This was a fairly substantial dip since employment rates after 12 months in all the years between 2004 and 2009 were 100%. However, this still compared well with CGE\(^{19}\) (85.7% employed after one year) and universities in France (90% after 30 months). 2iE rates employment of its graduates after graduation as good as many other universities in the world.

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\(^{16}\) [http://www.2ie-educ.org/metier-et-carriere/cv-theque/](http://www.2ie-educ.org/metier-et-carriere/cv-theque/)

\(^{17}\) [http://www.2ie-educ.org/metier-et-carriere/offres-dempsols-et-de-stages/deposer-une-offre-dempsloi-ou-de-stage/](http://www.2ie-educ.org/metier-et-carriere/offres-dempsols-et-de-stages/deposer-une-offre-dempsloi-ou-de-stage/)

\(^{18}\) [https://docs.google.com/spreadsheets/ccc?key=0Ap58BY5yTY5XduDUTmdNFV9iVUtYkR3TjMyc0N5a2c8&usp=drive_web#gid=0](https://docs.google.com/spreadsheets/ccc?key=0Ap58BY5yTY5XduDUTmdNFV9iVUtYkR3TjMyc0N5a2c8&usp=drive_web#gid=0)

\(^{19}\) CGE – Conférence des Grandes Ecoles. This is the association that represents all the grandes écoles in France, including the Engineering institutions accredited by the Commission des Titres d’Ingénieur (CTI) to deliver the French Diplôme d’Ingénieur. The 2iE degrees in Engineering are accredited by CTI.
The employment rates were confirmed by a questionnaire submitted to 4,410\textsuperscript{20} alumni (representing all graduates from 1987 to 2014 for which 2iE had current email addresses) in mid-2014. This survey indicated that over 69% of graduates found jobs in less than 6 months, while a further 15% found jobs within 12 months, giving an average of 84% after one year. Private companies provided employment for 52% of the graduates, public institutions 29% and international organisations, 10%. Very importantly, 98% of 2iE graduates work in Africa, thus meeting one of the major goals of the institution. The percentage of Masters graduates who created their own company within five years of graduation ranged from 5% in 2008 to 1% in 2013 (the latest year available).

There has been a steady increase in the submission of projects from students to the Entrepreneur Trail for business start-ups from 10 in 2008, rising to 67 in 2014; about three each year enter the incubator\textsuperscript{21}. Similarly, the numbers of research projects with partners rose from one in 2008 to 48 in 2014.

\textsuperscript{20} With a response of 212 complete responses.

\textsuperscript{21} The goal of the Entrepreneur Trail is to equip students with skills for self-employment.
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John Fielden

https://uwaterloo.ca

https://uwaterloo.ca/co-operative-education/about-co-operative-education

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Context

The University of Waterloo, founded in 1957, is one of the largest universities in the province of Ontario and has 30,600 undergraduate and 5,300 postgraduate students in six faculties. 35% of graduates and 13% of undergraduates are international. The emphasis on co-operative education was a founding key feature when the university started in 1957 and is a way of improving the students’ employability. In the Maclean’s rankings, Waterloo has been the most innovative university for the last 23 years and the best university overall for 16 years. It is very well known for its long experience of delivering co-op education, although prior to 1910 there were 10 pioneer universities in the US using the model. Since 1957, all faculties have adopted co-op education, starting with Engineering in 1957 and Arts in 1975. The Waterloo co-op programme is accredited through the Canadian Association for Co-operative Education (CAFCE) which specifies standards and requirements.

The University’s current strategic plan for 2014-19 sets an overall goal of being recognised as one of the top innovation universities in the world, and within this there are eight strategic themes. One of the three key themes is experiential education (EE), for which the goal is to be “the world-leading university in co-op education and other forms of experiential and work-integrated learning”. The university’s definition of experiential learning includes internships and clinical placements, community service learning, practicums involving supervised practical application, as well as co-op education. The University intends to make experiential education integral to how all its students learn and will broaden the types of experiential opportunities for students in Canada and abroad. Currently a working group on experiential education has turned its attention to work-integrated education (a subset of activities within experiential education). This means that a first set of initiatives in this area will involve setting up a centrally run and supported programme that will supplement/complement the academic curriculum and therefore not require changes within the existing curriculum to support it. The focus at Waterloo is still on co-op education, but the strategic plan sets out to expand/build on the co-op success and to develop opportunities for non-co-op students to get similar benefits from experiential education.

Description of the innovation

Waterloo has a global reputation as a well-established and recognised leader in the field of co-operative education. Its model has been copied in other countries. The co-op programmes of the university are overseen by a very large team (of 160 people in a department called Co-operative Education and Career Action or CECA). The University operates year round with three terms of four months each. The CECA department manages over 18,000 work terms per year, approximately, 6,000 in each of the three terms in the year. Co-op students (63% of the undergraduate population) typically participate in four to six four-month work terms during their degree. These terms are spaced over the four to five years of the degree programme, interspaced with residential terms at the University, and the extent and timing of the work terms varies by faculty. However all faculties participate. The co-operative experience can be taken in Canada, the US and 62 other countries. The University has partnered with

22 http://www.macleans.ca/education/unirankings/
23 https://uwaterloo.ca/strategic-plan-action/experiential-education
more than 5,200 employers so that students have a vast choice and can find employment that is appropriate to their programme. An evaluation of UW's co-op education in 2005 estimated that it added 20% to the cost of the University’s learning and teaching (including the management costs in CECA); to help meet the cost of this students currently pay the University a supplementary co-op fee of C$634. They offset this by earning salaries while on their work terms and they pay no tuition fees during the work terms.

Over the years a comprehensive support and advisory structure has been developed to help students. The overall co-op process that draws on this support includes the following:

- Before starting employment, students take a mandatory short course to support them through the employment search (e.g. preparing a CV, practising for interviews etc.) and to prepare them for their first work term. During each of their work terms, they take one of a suite of online professional development courses that UW has developed. Faculties decide which are mandatory for their programmes and which are elective. The courses have developed over time and are provided by a specialist team called WatPD (Waterloo Professional Development). For Engineering students there are two special mandatory courses related to workplace skills while the other five faculties share two mandatory courses on ‘Co-op fundamentals’ and ‘critical reflection and report writing’.

- The main methods of finding employment for co-op students is through ‘Jobmine’, a website containing details of the opportunities being offered by 5,200 employers in Canada and abroad. The students apply to their chosen employers in a fully competitive process involving interviews. CECA has worked with the employers to agree on the brief of each job that they offer and may co-ordinate administrative and travel arrangements for students, particularly if the job is in another country. Students may also arrange their own job or for later work terms return to a previous employer. The range of employers includes federal and provincial government as well as all industries and professions and not-for-profit organisations. Companies receive a provincial tax credit for every co-op student they hire.

- During each work term each student is supported by an advisor from CECA who is available to consult in person or via email. This role involves consultations with the student on work-related matters and follows a standard agenda that starts with the learning objectives and goal of the work term. The advisors are selected for their expertise in the industry concerned or the geographical area of the employer. They are located in cities throughout Ontario and the US (where about 9% of students go).

- Each student is also allocated a careers advisor who is available to help with the career resumé/CV and the hiring process. That advisor also helps the student with questions about the co-op process overall.

- All students have to complete a work report about their experience at the end of each work term. These are marked by staff in their department and a minimum of four satisfactory work reports (one from WatPD and three from work terms) are required for graduation in most programmes. The quality of the work reports is monitored and some faculties award prizes to the best.

- During the work term the majority of students are paid by their employer. On a case-by-case basis, students may be permitted to volunteer, but additional documentation must be provided to allow for this. The University’s website reports that potential cumulative earnings before graduation range from C$37,000 to C$77,000.

- All employers are required to complete a confidential performance evaluation on the students working for them and credits are awarded for satisfactory evaluations.

**Distinctive features of the innovation**

UW’s co-op education system is very well known throughout Canada and globally, and many other universities seek to emulate it. It has been developed and gradually strengthened ever since the university was founded.

The statistics are impressive: in 2014-15, 20,829 students out of a total student population of 33,670 participated in co-op education; all faculties are involved (to varying degrees); since 2004 the proportion of the undergraduate population participating has increased from 55% to 63%; the number of employers wanting co-op students has also grown and 92% of employers rate the students as either very good or outstanding.

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24 Jobmine is being replaced by a new system WaterlooWorks that integrates processes that were separate and allows employers to input materials.
However over 35% of undergraduate students do not participate and when asked why not their answers vary. Many do not want to delay graduation beyond the four years of a traditional degree, and some students do not achieve the academic requirements to stay in the co-op programme, since for some programmes, the entrance average for co-op is higher than for non-co-op.

A good proportion of international students participate in co-op education. In 2014-15, 53% of international students (2,987) joined the programmes.

**Drivers for the innovation**

There was no specific reason for UW's adoption of co-op education other than a wish to provide the community with students that understood the world of work and who could benefit from mastering employable skills during their university career.

The University's strategy is recognised by the Ministry of Training, Colleges and Universities of the Province of Ontario with whom a Strategic Mandate Agreement has been signed; this incorporates reporting mechanisms relating to innovation and co-op education activities with mutually agreed metrics. The Ministry's Job Differentiation Framework emphasises the importance of jobs, innovation and economic development and the UW has undertaken to align its own strengths to support the Ministry's goals. This will be achieved by continuing its emphasis on entrepreneurial education and experiential learning.

**Funding for the innovation**

The co-op programme has been entirely self-funded by the University. The co-op fee (which meets all the extra costs of CECA etc.) is the main source of revenue in running the co-op programme with the exception of some capital funding for the co-op building and some from the University's operating budget for the development of the IT system.

**Barriers to implementation**

For Waterloo, the biggest challenges are continuing to maintain the high number of quality work experiences for students throughout the ups and downs in the labour market. Additionally, with the large number of students being employed every term and the competitive nature of the process, it is always difficult for the first work term students, especially those who come to university without prior work experience. The CECA tracks employment opportunities by programme and monitors the ratio of students to the available positions, and identifies programmes as 'focus programmes' where more effort is needed to bring in employment opportunities. Those focus programmes do change as the supply/demand in the labour market changes. The CECA's website shows where students have managed to find job opportunities.

**Embedding of the innovation**

Waterloo started as an Engineering school and the co-op programme has expanded from its roots in Engineering, where it is compulsory, to all other faculties at Waterloo.

Co-op education began at the start of the University's life and is thoroughly embedded in all parts of UW and, as has been seen, its development (as part of experiential education) is regarded as one of the most important themes in the future strategy.

**Impact and success of the innovation**

In 2006 there was an internal evaluation of the programme which made a very large number of recommendations for improvement to the processes involved. More recently there has been a second, more strategic, review which is confidential.

The University believes that co-op has made a substantial impact in the Waterloo region in the development of its ecosystem of economic growth and entrepreneurship. It makes Waterloo a more attractive option during the recruitment of students.

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Beyond the system-wide impacts, co-op makes a big difference in the lives of the students who participate. Most faculty members who have taught elsewhere or who teach both co-op and non-co-op students report that they see differences in the way co-op students approach learning. One faculty member said that with co-op students you need to give the example first and then they’ll listen to you explain the theory. They can be more demanding of faculty members because they want to know how the material can be applied and they also can challenge faculty members with the point that the formal classroom approach to something may not be the way it actually happens in the ‘real world’.

There are ways that co-op work terms are explicitly integrated into the classroom. In most cases that happens in mandatory co-op programmes such as Engineering and Pharmacy. A good example of this is: https://uwaterloo.ca/engineering-cases/ where they take students’ work term reports and turn them into cases that can be used in the classroom.

Participation brings financial benefits since co-op graduates are better paid than non-co-op graduates. After six months 81% of them get salaries in excess of C$40,000, compared with 60% for non-co-op graduates and 42% for the graduates of other Ontario universities. A factor that explains part of the co-op/non co-op difference is that the population of co-op students is almost 50% Engineering where higher starter salaries are expected. Another reason is that the co-op graduate has studied/worked for a year longer than other graduates, which should be a factor that is taken into account when comparing salaries.

The performance of EE will be judged using six key metrics: participation rates, retention, engagement, articulation of transferable skills, community engagement and longitudinal employment earnings. Four of these are already available and are used. The University is keen to ensure not only that students have had the opportunity to develop transferable skills, but that they can tell UW (and future employers) how they know they obtained and have developed those skills.

Metrics on co-op education are positive: the University cites figures showing that the percentage of co-op graduates employed after six months is 92% compared with 87% for non-co-op graduates and 56% for all Ontario graduates.
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http://www.ruc.dk/en/

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Context

Established in 1972, Roskilde University (RUC) promoted education based on a set of principles that have endured. RUC promises students that they will acquire the following skills:

> “Learn to work across disciplines and think outside the box;
> Apply scientific methods to solve the problems of the surrounding world;
> Independently identify and solve problems;
> Manage projects and collaborate.”

RUC is currently structured around six multidisciplinary departments:

> Environmental Science, social and spatial change;
> Culture and identity;
> Society and globalisation;
> Psychology and Educational Studies;
> Science, systems and models;
> Communication, business and information technologies.

The University’s architecture and layout was conceived in line with the educational philosophy and consists mostly of seminar rooms with movable furniture. Bachelor studies are organised in ‘houses’, which are social and spatial entities sharing a seminar room, a student kitchen and sitting room, and a number of group work rooms (see below for details).

8,000 students are enrolled at RUC and the university has been committed to increasing and broadening access to higher education since its establishment.

Description of the innovation

Education at RUC is based on the following principles: interdisciplinarity and problem-orientation, project work, group work, and close links between research and education. It is the interconnection between these various elements that makes the RUC model unique.

The approach was designed in the 1970s to provide an interactive learning environment and to develop critical learning and problem-solving skills. These aims are still current: to ensure that students are effective problem-solvers and contribute to their communities. After a few years when the University was politically contested for its radically different approach, the graduates have gained a good reputation with employers who consider that they have a particular set of skills and qualifications.

Problem-oriented project learning (PPL) “shares some key pedagogical ideas with the internationally more well-known concept of problem-based learning (PBL) ... Both concepts advocate that the learners should be working

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26 A different experience: study options for full degree and exchange students, Roskilde University brochure (no date).
with carefully selected problems that require them to apply domain-specific and domain-general knowledge, self-directed learning strategies, and team participation skills. In PPL, however, there is a stronger emphasis on the students defining problems of their own choice, as well as on aligning study work with research procedures.” (Andersen and Heilesen 2015, p. x). 27

Undergraduate and postgraduate (Masters) curricula include 50% coursework and 50% project work. Some of the teaching is based on lectures but the typical course has 10-30 students. The course format varies, and includes lectures, study groups and seminars, etc.

Most students live off campus and in the Copenhagen area. To facilitate group work, a group of 110 students is affiliated to a ‘house’ (e.g. a floor or limited area in a university building), which provides seminar rooms for academic activities and space for group work and social activities. The houses include the offices of one administrative staff and two to six academic staff, computers and copying facilities. The 110 students are given a key to their house, and collectively bear responsibility for the practical facilities. Each group of 110 students design their group project, agree the problem they want to investigate and study it during the semester. The same group of 110 students work on a new project, the following semester.

Importantly, the notion of ‘house’ at RUC is different from that of a residential university because it provides students with a setting for all their group activities. According to Blomhøj et al. (2015), the house structure has minimised dropout rates by comparison to more traditional universities. It should be noted, however, that PPL and its physical anchoring cannot be distinguished and it is difficult to differentiate the social from the pedagogical aspects of the approach.

Undergraduates are introduced to the problem-oriented project work from the time they enter the University. They learn to manage and conduct a project within a team and are given opportunities to carry out their own research or internship with an external organisation.

Each project work is conducted by groups of three to eight students over a semester. Some of the projects are generated by the students, in discussion with academic staff; others are proposed by external partners, thus allowing students to work on real-life problems. For the latter, the RUC Innovation Office organises events, which allow external partners to present projects to students. In 2013, 44% of students were involved in such projects (all others are internally generated) (Andersen and Heilesen 2015, p. 201)28. A student association organises monthly luncheons with public and private innovators and citizens to meet with students.

The same set of milestones structures all projects during a semester: problem formulation seminars, mid-term evaluation with peer-feedback, end-of-term evaluation also with peer-feedback, presentation of the projects to the whole house, poster makings, etc. A house-coordinating professor plays a very important role in the whole project work process throughout the semester by providing the scientific context for the project and serving as a sounding board to the group. Each project work results in a thesis of 40-100 pages written by the students, in which all of them are responsible for the content and quality of the document; this is the basis for the group examination.

The oral examination of project work is normally a group presentation of the project thesis and discussion with the supervisor and an external examiner, focusing on problem formulation, the theoretical approaches and methods and their possible practical implications. There is ample time for this conversation: half an hour per student in the group (i.e. for a group of six students, the examination will last three hours). All students participate and the students can get different marks related to their presentation.

Students must adapt to the Roskilde model. This is particularly challenging for first year students and international students. The University offers a three-week introductory programme for entering students that is led by senior students who have been trained to serve as tutors to student groups. International exchange students are provided with more structured support (they meet with supervisors more frequently) than domestic students to ensure that they adapt quickly to their new environment.

27 See also chapter 1 by Andersen and Kjeldsen for a rich conceptual discussion.
28 For examples of natural science projects, see Blomhøj, M and T.H. Kjeldsen (2009).
Distinctive features of the innovation

This is an example of a student-centred, project-based institution. RUC allows students to develop a range of soft skills (leadership, group work, project management, conflict resolution, etc.) and gives them a home and sense of belonging, thus increasing their chance of success. They are also assessed in a variety of ways.

Drivers for the innovation

This idea of teaching according to a different model was developed in the student movement of the '60s and in a few experimental units of existing universities; these innovations, however, were not really adopted by these institutions.

The model was developed nationally before RUC opened. A task force, appointed by the Minister of Education (including the incoming Rector, a student representative, a chief librarian, academic and administrative staff) took advantage of existing teaching experiments, but also connected with voices of political critiques of the 'ivory tower'. Inspired in part by ideas of exemplary learning developed by German sociologist Oskar Negt (Andersen and Kjeldsen 2015, pp. 7-8), the task force developed the model and emphasised the problem-oriented academic approach, the students’ co-determination, and the spatial and social organisation of studies. Students were major contributors in shaping the approach.

Funding for the innovation

There was no external funding to introduce PPL. The University receives public funding as well as external funds from research council grants, EU projects, and commissioned research.

Barriers to implementation

Implementing the Roskilde model was not straightforward and faced internal and external opposition. According to Andersen, RUC faced opposition, even threats of closure at the beginning; today, however, it has been accepted “as a university equal to others. It has also been able to maintain its education model...” while it “had been subject to fundamental changes with respect to its academic profile, faculty-student cooperation, and the link between research and study programmes.” (Andersen 2015, pp. 71-2).

Initially, there was tension between the more traditional and the reform-minded staff, and several specific ideas and expectations about its further development, but finally the model was accepted and promoted by all staff. The close collaboration in small groups of teachers (the three to five academics who are responsible for the teaching in a house) has been of great importance to promoting faculty understanding of and commitment to the model, and for the culture of teacher collaboration on the whole. A pedagogical unit offers academic staff development and introduces newly employed teachers to the project pedagogy, to prepare them particularly for their role as project supervisors. This is acquiring increasing importance as the replacement of staff from the early years accelerates.

Academic staff members are recruited in the normal way (by advertisement and applications). Along with the importance of research, all applicants know about the special educational and learning model of RUC.

The interdisciplinary collaboration of teachers also helps in promoting interdisciplinary research. RUC’s research profile is mainly defined along interdisciplinary themes (and research groups) that correspond, to some extent, with the graduate programmes, although the research organisation is, of course, influenced by such factors as research impact factors and individual researchers’ priorities, etc. The departmental structures are in line with this approach.

Under the pressure of scarce resources, the departments have, to some extent, become closed units. Nevertheless, inter-departmental postgraduate programmes have continuously been developed, driven by research themes or external societal factors (e.g., health promotion), the shared responsibility for the interdisciplinary Bachelor programmes and the volume of teaching work carried out across departments.

The various contributors to Andersen and Heilesen (2015) show that since 1972 there has been a great deal of discussion and change within the initial framework as RUC responds to changing societal and political demands, as well as the requirements of the Danish quality assurance agency.

The challenge in implementing this approach is to understand the connection between the different elements:

...the problem-oriented project work defines a new pedagogical context for the academic content of the study programmes. At the same time, the model establishes a new form of work organisation...
Some of the components of the model present specific attitudinal and cultural challenges for both teachers and students, mostly related to shifting to a student-centred approach and to working within pedagogical teams:

1. **Problem-oriented learning and project-work**: The studies are organised around projects, the students have to study on their own, with teachers as their tutors. The students are not customers but partners of the learning process. They have to be active in the project organisation and the project work and take responsibility for the organisation of the work.

Some academic staff might dislike this approach that does not place them at the centre of the learning process; others might resist the change to problem-oriented studies, which does not allow them to rely solely on their well-defined disciplinary knowledge. Switching to a student-centred approach, emphasising learning rather than teaching, and implementing a learning-outcome approach needs to be supported by leadership and external expertise.

Sharing experience among teachers and introducing and supporting students to project work are also important aspects. Indeed, in the PPL approach “instead of reproducing insights from the curriculum and applying pre-selected theories or models to given case materials, students are expected independently to generate new knowledge relevant to their study subject. Thus, the study process is rather like a research process, and this entails that one of the supervisor’s primary roles is to support the students’ development of academic knowledge and competences.” (Andersen and Heilesen 2015, p. xvi) The students, together with their tutors, must identify and discuss theories and other relevant material and use these theories in their project.

2. **Interdisciplinarity**: this component is connected to the problem orientation and requires that staff work as part of pedagogical teams. Although the approach emphasises interdisciplinarity, there is still a place for the staff’s subject specialisation, but now they have to contribute to a project defined by the students; this is different from a teaching tradition where each teacher defines the students’ work.

**Embedding of the innovation**

RUC (with its innovative approach) was established in 1972. The learning and teaching approach is an integral part of RUC’s profile and regarded as a strategic asset. It was a University-wide approach from the start, defining the University as an alternative or ‘experimental’ institution in response to the general challenges of mass higher education at a time when Denmark was seeking to increase access and participation in higher education.

All departments and faculties are applying the most important features of the learning model although, as in more traditional teaching approaches, there are minor differences in the way the model is applied in the different disciplinary fields.

**Impact and success of the innovation**

The education at RUC has been evaluated by the EUA’s Institutional Evaluation Programme in 1999 and accredited by the Danish national agencies but these were not impact studies per se.

The RUC and Aalborg models are a common reference in all national educational discussion and have had an impact in inspiring new ways of teaching at all levels.

The employment rates of graduates are similar to that of other Danish universities, but some senior RUC staff claim that the graduates are distinguished and appreciated by some employers for their teamwork and problem-solving skills and for their innovative fields of expertise; however, it is admitted that other employers regard them as less well educated in traditional basic knowledge.

The students fill in evaluation forms and discuss them with their teachers. The student satisfaction scores are normally high, but it should be remembered that the students have chosen RUC for their studies.
Indicators of quality used by RUC include the number of applicants, the dropout rate, feedback from the external examiners and from the departments’ employer panels, and the level of the grades for Bachelor projects and theses. Many applicants select RUC as their first choice, the dropout rate at Bachelor’s level is a bit lower than the national one. RUC does not use satisfaction surveys of its students and graduates, but this will be undertaken nationally, starting in 2016.

References


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Context

The University of Maastricht (UM) is the youngest university in the Netherlands and ranked six in the QS ‘50 under 50’ ranking for 2014-15, the only European university in the top 10 despite its relatively low funding level. It has a reputation for problem-based learning (PBL) and internationalisation.

Facts and figures:

- UM has about 16,000 students, of whom 64% are undergraduates;
- 47% of students are international and originate from 108 countries;
- 39% of academic staff are international;
- 7% of administrative staff are international.

Description of the innovation

This case study focuses on two innovations:

Problem-based learning (PBL): UM was created in 1974, originally with a faculty of Medicine, later expanded to Economics and Business, Law, Psychology and Neuroscience, Humanities and Sciences, Arts and Social Sciences. PBL is used in all study programmes. Maastricht University regularly renews its education framework, e.g., by introducing research-based learning in the Bachelor’s programmes (in 2009) or setting up EdLab, an incubator for improvements and innovations in education, e.g., with regard to assessment (in 2014).

Internationalisation: the international approach integrates international components in practically all degree courses, using English throughout the university including all Bachelor degree courses and student services (i.e., all service and support staff who interact with students, from the reception desks to the admissions offices and the ‘food court’ staff, etc.), and ample possibilities for periods abroad. For instance, the School of Business and Economics describes its approach for students in the following way:

- “Work in small teams with students from around the world;
- Learn by doing: your study setting is designed to mirror a real work environment;
- Examine the latest developments in international business and solve real-world cases;
- Find out how to make a business run, taking into account factors like law, taxation and globalisation;
- Develop the skills to apply this knowledge: conflict management, leadership, teamwork, communication skills and more.”

Distinctive features of the innovation

PBL is University-wide but UM accepts and allows different uses of PBL, depending on the disciplinary fields (e.g., project-based learning in Knowledge Engineering). The PBL approach has been adopted by universities around the...
world but rarely so extensively across an institution. In many other universities, PBL is usually found in Medicine and is making inroads in Engineering, but usually does not find application in other fields.

The extensive internationalisation of UM is also a special feature with unusually high proportions of international staff and international students.

Drivers for the innovation

PBL: A political requirement of this new university was to teach in a different way from the historical universities in the Netherlands.

Internationalisation: The two drivers were:
>
> an ageing region and changing demographics which led to the need to recruit students from all over the world to counterbalance this development;
>
> awareness of the fact that UM's graduates will enter the global labour market and therefore need certain skill sets (e.g., English language proficiency and intercultural competencies).

The idea of opening a new university came from the government in the 1970s, as it was worried about the economic downturn in the mining area in which Maastricht is located. Opposition from the established universities to the creation of a new university was countered by the acknowledgment that UM would be very different in its profile, approach and teaching methodology.

The innovative outlook embodied in PBL has been maintained despite the 20-fold enrolment growth. A culture of innovation is now central to the identity and mission of UM.

Funding for the innovation

This is a publically funded institution that has diversified its funding sources via research grants, project work and limited fundraising (less than 0.5% of the income). These are University-wide initiatives supported by the core budget.

Barriers to implementation

Obstacles to introducing PBL: included introducing a team approach to curricular development: some disciplines may feel that their share is too small in a specific subject; some faculties may feel that their autonomy is being curtailed.

Staff members were asked to adopt the principles of PBL. Structural feedback and annual meetings addressed the problems that were identified.

PBL is labour intensive and requires excellent teaching skills. A scheme had to be introduced to recognise excellent teachers on a par with researchers and to include teaching as part of the promotion criteria.

An external examiner system was set up to convince students and colleagues from other universities that the approach produced good learning. Maastricht medical students were benchmarked positively against other students. Education experts were included in the staff of the medical faculty as well as in the School of Business and Economics, which supported the ongoing curricular development process, along with regular alumni feedback.

Obstacles to internationalisation: there were none internally, because all stakeholders understood the importance of internationalisation. In relation to the city and its inhabitants, any potential issues that could arise from having a growing international student population in town were nipped in the bud thanks to open communication, joint projects and sustained engagement with the local authorities. Students have been involved in many initiatives in the city and locally regularly participate in internationally oriented University events.

Embedding the innovation

PBL started in Medicine, which was UM's first faculty. It has since spread to all faculties and all study programmes.

The international approach (e.g., transitioning from Dutch to English-taught programmes) started in the School of Business and Economics in the late 1980s. In the process, all teaching staff also had to undergo English language training. Other faculties started to follow in the 1990s. More and more international students came to Maastricht and there was also an increase in foreign staff following this development. From the late 1990s/early 2000s onwards, all new study programmes were developed only in English. The notion is that UM trains students for jobs
on the global labour market; qualities such as intercultural competencies are developed in PBL in an international setting. There are now only very few Dutch-taught programmes left at UM (mainly those that train students for a very specific field that lead to a job in the regional labour market, like Medicine and Dutch Law). Internationalisation is now an essential characteristic of UM.

The organisational processes ensure that senior leadership (led by an Executive Board) is effective in providing a central steer: Deans are appointed by the Board (in many continental universities, they are elected); although many academic and management powers are devolved to them, they have monthly meetings with the Executive Board, particularly two-day seminars with external facilitators to discuss important aspects of institutional strategy; schools sign a performance agreement with the Executive Board, which is monitored and discussed twice a year.

1. **PBL:** With respect to staff recruitment, commitment to PBL is a central recruiting criterion. Staff development in PBL is mandatory, since it is a defining feature of UM.

2. **International:** All faculties and schools participate in internationalisation activities; it runs as a red thread through the institution. International students and staff can be found within all faculties. All teaching is in English, except for a few study programmes such as Dutch Law. All faculties have a broad network of international partner universities for student exchange, joint research, double degree programmes, etc.

3. **Deans are held accountable for engaging with society. Social engagement is a key performance indicator (KPI) in the University’s Balanced Score Card reporting process. The projects within the ‘Knowledge Axis’ are closely monitored.**

### Impact and success of the innovation

PBL was evaluated early on by looking at the performance of medical students in Maastricht as compared to other Dutch medical students. The results were positive for the Maastricht students. The dropout rate is lower among PBL students who graduate faster than students in traditional teaching environments; they are more satisfied with their degree programme, and score higher on tests that measure know-how (applying knowledge to cases, etc.) (Schmidt et al., 2010 and 2011).

In 2013, UM received the 'Distinctive Quality Feature Internationalisation' on institutional level from the NVAO, the Dutch-Flemish Accreditation Organisation. UM was granted this quality label, based on the assessment of an independent and international academic panel who underlined its international profile and University-wide accomplishments in this area.

PBL has been thoroughly researched, particularly in the medical field, to show that cognition gains are much higher than with conventional approaches and that students’ interest in their studies and knowledge mastery are strong.

**Internationalisation:** The criteria used by NVAO for awarding the quality label to an institution include the following:

- "The distinctive feature Institutional Internationalisation is based on the institution’s internationalisation vision;
- This vision needs to be mirrored by appropriate policies;
- Institutional internationalisation must have a significant impact on the overall quality of the education provided;
- The realisation of "internationalisation" policies should be demonstrated throughout the institution’s education provision. Realisations include at least the following elements: international and intercultural learning outcomes, teaching and learning, staff and students;"

More details can be found in NVAO 2011.

### References


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Maastricht University (nd) Problem based learning at the University of Maastricht [Internet]. Available from: http://www.maastrichtuniversity.nl/web/Main/Education/ProblemBasedLearning.htm [Accessed 16 March 2016]. The university has just launched a MOOC on PBL which can be accessed at https://moocs.maastrichtuniversity.nl


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Context

Nelson Mandela Metropolitan University (NMMU) is one of six comprehensive universities in South Africa, formed in 2005 from a merger between two universities and a technikon. It offers both general and professionally orientated university programmes up to PhD as well as technologically and career-oriented programmes from entrance level (higher certificate) through to doctoral research level (PhD) (contributed by the former technikon).

In 2014, NMMU had 25,000 students, of whom 10% were international, with internationalisation being a strategic priority. Less than 25% of its students are white and more than half are female.

NMMU offers extended curriculum programmes to provide access for under-represented students, as well as a range of academic support programmes and student services. It has spent a great deal of time on understanding the different types of curricula required for the more academic and more vocational qualifications and the possible pathways between them. Through this work, it has offered national leadership in its field of curriculum development.

NMMU is located in the Eastern Cape – one of the poorer areas of South Africa – and it takes its responsibility towards the region seriously. After the merger of its component institutions, NMMU embarked on extensive consultation in order to define its mission. It defines itself as an ‘engaged institution’ which means to “engage and form partnerships, interact with stakeholders and reach out and contribute towards the sustainable development of the communities it serves.”

The students who come to NMMU come mainly from deprived catchment areas and are mostly first-generation university students. At the same time, unemployment levels in the Eastern Cape are among the highest in the country. NMMU has to take seriously both the financially and educationally deprived backgrounds of its students and the challenging economic environment which its graduates enter. It has to make sure that its graduates have the skills and entrepreneurial drive that will enable them to be employed or self-employed and to contribute to the economic development of the region so that more jobs are available. The initiatives discussed here focus both on developing NMMU students as well as supporting local businesses and community organisations.

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31 ‘Comprehensive’ implies that both vocational (ex-technikon) qualifications are offered together with traditional university qualifications. The university combines the attributes of both technikons and universities.

32 Technikons were originally designed to offer vocational training at tertiary certificate and diploma levels. They were later granted the right to offer BTech degrees, but still retained their vocational origins. In the restructuring of South African higher education post-apartheid, some technikons were merged with traditional universities to become what were called comprehensive universities – like NMMU. Some technikons were retained, still offering mostly vocational qualifications with the right to offer undergraduate and postgraduate degrees, but became known as Universities of Technology.

33 Extended degree programmes take many forms, but are usually designed to take a year longer than the traditional degree programme. The same curriculum is covered, but over an extended period, usually an additional year.
Description of the innovation

EXPERIENTIAL LEARNING INCLUDING CO-CURRICULAR ACTIVITIES

The NMMU 2020 Strategic Plan set ‘transformative learning’ and ‘holistic student development’ as institutional priorities. The institutional objective was to create "seamless learning environments to holistically develop student learning in and outside the classroom and develop a recognition system, which encourages active participation in university life".

NMMU has a two-pronged approach: experiential learning related to academic programmes (service learning, internships, and work-based placements) as well as experiential learning through co-curricular activities (education, learning and development acquired from out-of-classroom activities). In South Africa it is unique in intentionally focusing on the learning outcomes of co-curricular activities (with the belief that some graduate attributes can be better honed outside the classroom) and then recognising these formally. In the process, they become co-curricular activities rather than extra-curricular activities.

CO-CURRICULAR ACTIVITIES

While there is an established process in South Africa to record and recognise learning outcomes in academic programmes34, a similar process for activities outside the classroom is less prevalent. A co-curricular record (CCR) policy and procedures were developed and approved from 1 January 2012 in order to formally recognise co-curricular involvements.

The CCR provides a list of approved out-of-classroom activities for students to select from. Students can record the education, learning and development they acquire in these activities, which are verified by the relevant department/faculty. Students also have access to the official record so that they can review the nature and scope of their co-curricular activities from the first year onwards. “This will assist them to develop themselves holistically, develop the attributes required of NMMU graduates and pursue their career and personal goals throughout their university experience.”35 The CCR complements the students’ academic record and CV when applying for jobs or further study.

NMMU used the standards developed by the Council for the Advancement of Standards in Higher Education (CASHE) based in Washington DC36 and adapted them to relate to their own context, taking into account the following local elements:

- Government policy related to skills deficits and the perceived role higher education institutions (HEIs) could play in addressing these;
- Research on employers’ views on graduate attributes required for employment, both met and unmet.

Analysing and testing the standards adapted from CAS, multi-disciplinary teams inside and outside the University undertook a careful mapping process to develop 15 Learning Outcomes and 70 Development Indicators; these form the basis of the co-curricular record. The process was designed to measure the opportunity for a student to learn and not the degree to which the learning occurred. Learning outcomes had to be linked to specific co-curricular activities, and had to be aligned with institutional, national and international trends with respect to the attributes for living and working in the 21st century.

Activities recorded in the CCR might occur in any of four locations:

- on campus in classroom;
- on campus out of classroom;
- off campus in local community;
- off campus in international community.

Initially only a few activities were approved and piloted, but activities with linked learning outcomes are being formally approved all the time. These are published annually by the Co-Curricular Student Development

34 All academic programmes have to be registered and approved by the South African Qualifications Authority (SAQA) and meet the requirements of the National Qualifications Framework, which is outcomes-based.
35 Taken from the CCR Policy, page 3
36 http://www.cas.edu/
Committee. Activities are offered by a specific department or section or faculty and become the responsibility of a programme co-ordinator. Three examples of recognised activities are described in Table 1 below:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Role</th>
<th>Purpose and description</th>
<th>Dates for activity</th>
<th>Learning outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplemental instruction (SI)</td>
<td>Supplemental Instruction Leader</td>
<td>SI sessions are based on peer collaborative facilitation and students are assisted with strategies to solve their own problems. SI leaders are senior students. Time commitment is nine hours per week</td>
<td>February - October</td>
<td>Effective communication, Independence, Professionalism</td>
</tr>
<tr>
<td>Beyond the classroom leadership programme</td>
<td>Member of the group</td>
<td>The programme is run by the Department of Student Governance and Development. It assists students to develop skills needed for effective, ethical leadership through a combination of community service and classroom learning, where students gain diverse skills such as CV development, conflict management or making a presentation. Students compile portfolios of documents produced or learning achieved for formal assessment. Time commitment is six hours per month, plus 20 hours of community service</td>
<td>March - November</td>
<td>Appreciating diversity, Intellectual growth, Meaningful interpersonal relationships</td>
</tr>
<tr>
<td>How2 Buddies</td>
<td>How2 Buddy</td>
<td>Senior students support first year students in their adjustment to university. They facilitate a first year orientation group within their own department and mentor group members for the first term. Annual time commitment is 96 hours</td>
<td>July - March</td>
<td>Appreciating diversity, Collaboration, Meaningful interpersonal relationships</td>
</tr>
</tbody>
</table>

The software used to record the achievements was designed to mimic the academic records of the institution, with similar security and secure access by students and staff. The CCR is authenticated with signatures of institutional office-bearers.

While a blank CCR is automatically generated when a student registers for the first time, the student has to take responsibility for populating his/her CCR. During the pilot period, which ended in December 2015, more than 5,500 students have activated and posted entries on their CCR. Awareness about the CCR and the value of co-curricular learning is raised during orientation, co-curricular activities and in class. As a consequence, the percentage of students engaging in co-curricular activities increased from 17.4% in 2011 to 43% in 2013. As more students get involved in co-curricular activities and as more activities are recognised on the CCR, NMMU hopes for substantial growth in the number of students who actively engage in co-curricular activities. Ongoing marketing of the value of co-curricular learning remains a key strategy to grow student involvement.

Students have been successful in using their co-curricular records when applying for jobs and special scholarships (e.g., Mandela Rhodes Scholarships).
EXPERIENTIAL LEARNING

Experiential learning incorporates work-integrated learning and service learning and is part of a broad umbrella concept of Co-operative Education\(^{37}\) referring to partnerships between the University and its external stakeholders.

Work-integrated learning is a structured form of experiential learning within a formal learning programme that focuses on the application of theory in an authentic or simulated workplace context (a simulated workplace is more likely in the humanities and economic sciences).

Service learning is applied learning which is directed at the needs of under-serviced communities. The purpose of service learning is to engender a sense of civic responsibility in students enabling them to share their knowledge and skills with civic society. Around 450 to 500 students from a range of faculties are involved in experiential and service learning each year. In 2013 students volunteered a total of 6,076 hours. In one project - “Beyond the Classroom Programme” - 217 students committed to a minimum of 20 hours community service, totalling 4,340 hours. Law students give presentations on various topics to schools, community organisations and some state departments. Over the years, NMMU has established partnerships and programme advisory boards and uses practising professionals as guest lecturers.

Where work-integrated learning or service learning is part of a formal qualification (e.g., for student teachers), it is part of the requirements of a module, the outcome of which is captured on the student’s academic record. Where the service learning is part of civic responsibility to engage with community organisations and schools, especially in disadvantaged areas, the outcomes of the service learning are mapped and recorded on the CCR.

On-campus experiential learning opportunities for NMMU undergraduates are funded by two Sector Education and Training Authorities (SETAs\(^{38}\) – Manufacturing, Engineering and Related Services (MERSETA) and the Educational, Training and Development Practices (ETDP). Projects worked on included Bio-fuels, the Siemens Cyber Junk Yard Competition, the production of a Solar Car, and wind energy projects. In addition, the Financial and Accounting SETA, in partnership with the Graduate Placement Unit, regularly sponsors 80 Accountancy and Auditing students as well as unemployed graduates to undergo a five-month work readiness programme.

Opportunities have been expanded for students to undergo off-campus work-integrated learning, service learning, and curriculum-based volunteerism through the formalisation of partnerships with external stakeholders, which include motor companies (e.g., Volkswagen, Mercedes Benz), the Department of Health, engineering companies, building contractors, the national electricity supplier (Eskom), the Agricultural Research Council, farms, dairies, Rural Development Agencies, mines, hospitals and health clinics, as well as schools.

Students are prepared for experiential learning so that they have the necessary skills and are clear about their roles and obligations as well as the nature of the industry in which they will work. They are exposed to learning activities such as CV writing and interviewing skills. Students are encouraged to apply to several openings for work experience, for which they submit letters of application and CVs. After drawing up a shortlist, the Co-operative Unit organises the interviews and students are interviewed by two to three interviewers for 15-20 minutes. Successful applicants sign a formal training contract for a specified time. Learning criteria and specific outcomes are documented to give guidance to the students, mentors and employers. Employers are visited regularly to ensure that the learning takes place in accordance with the prescribed standards and criteria. Employers are required to sign off on any logbooks or similar documents. There are guides for how to design and structure work-integrated learning for the workplace. Annually, 750 to 800 employers indicate that they are able to provide experiential learning opportunities for NMMU students. The Faculty of Engineering, the Built Environment and IT receives the most requests (450 to 550), followed by the Faculty of Business and Economic Sciences (170 to 180) and the Faculty of Science (50 to 80).

The work is monitored by faculty staff through visits to the workplace, discussions with students, employers and mentors; these are documented. Logbook entries, presentations or other agreed evidence for portfolios or artefacts are used to assess student progress. Interim and continuous assessment may occur throughout the

\(^{37}\) [http://cooped.nmmu.ac.za/](http://cooped.nmmu.ac.za/)

\(^{38}\) These organisations were re-established in 2005 by the Minister of Labour. They are concerned with education and training and their job is to help implement the National Skills Development Strategy and to increase the skills of people in their sector. They cover every industry and occupation.
experiential learning period. Finally, structured and recorded feedback by students and employers serve as a review of quality assurance.

**Distinctive features of the innovation**

NMMU has used the experience gained from vocational curricula and work placements previously offered by technikons to extend this to all programmes, to the benefit of all students. It has also attempted to link experiential learning to community needs. The experience and skills gained by non-traditional and first-generation students during their studies have made them more likely to find employment after graduation (see metrics below). It has contributed both to employment opportunities by supporting local industry as well as to the employability and likelihood of employment of its graduates.

**Divers for the innovation**

The vocational areas were relatively strong at the time of the merger so the desire was to infuse these strengths into other areas. Unemployment is high in the surrounding areas so innovations that make students more employable or able to generate their own employment are important. Collaboration with business and SETAs is also important for the region and for NMMU’s vision of itself as an engaged university. NMMU conducts a Graduate Destination Survey at its graduation ceremonies. Graduates record their need to be involved in experiential learning activities as an enhancement to their employability. Consequently, from just more than half the graduates in 2011 reporting that they had participated in experiential or work-based learning during their studies at NMMU, almost two-thirds of graduates in 2013 had participated in experiential learning.

**Funding for the innovation**

On-campus experiential learning opportunities for NMMU undergraduates are funded by the three Sector Education and Training Authorities (SETAs) mentioned before. Students in these areas are mainly placed in professional support service units and research and engagement entities. Other opportunities for students to undergo off-campus work-integrated learning, service learning, and curriculum-based volunteerism were made possible through the formalisation of partnerships with external stakeholders, which included the Cheshire Homes, FamHealth Medipark, Masifunde Learner Development, Emmanuel Aids Haven and the Automotive Industry Development Centre. In addition, some internships in the faculty of Health Sciences are collaboratively funded by the NMMU, the Department of Health and private health organisations/hospitals. The African Union Foundation has funded some community outreach projects at NMMU.

When academic staff undertake monitoring visits to students doing experiential and work-integrated learning off campus, the funding for these visits is covered by the specific department’s operational budget. Where the experiential learning forms part of a module (e.g., service learning undertaken by student teachers, Psychology internships), the module fee includes an amount for the monitoring of experiential learning and the supervision of students in work settings.

The development of the CCR was funded through strategic funds allocated to the project by NMMU. The back-office maintenance, continued development of the online system, and resources needed to undertake the mapping of co-curricular activities are performed by staff from relevant departments (Student Affairs, HEADS and ICT Services).

Although many of the activities undertaken by students are voluntary, some are paid. For example, tutors and SI leaders are paid between R30 and R80 per hour and even this small amount of money is important in helping students remain at university. How2 Buddies and Peer Helpers sometimes receive money for transport. All these are funded by NMMU. Some work placements are sponsored by SETAs to cover transport. Health Professions interns get paid small amounts for their work.

**Barriers to implementation**

Challenges in implementing both co-curricular and experiential learning, have included:

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39 Supported living.
40 HEADS – Higher Education, Access and Development Services
Limited staff capacity to drive the necessary institutional processes related to the CCR and to supervise and quality assure experiential learning. Ways in which capacity issues have been addressed are to seek strategic funding from the University management to make contract appointments and to appoint retired professionals to undertake some of the supervision and quality assurance.

Managing student expectations regarding the speed with which it was possible to add more experiential learning opportunities or entries on the CCR. It was important to pilot/expand things slowly so that the procedures/experiences/activities could be appropriately bedded down and refined before they were scaled up.

Managing the different philosophies related to co-curricular and experiential learning. As a merged institution, there were different conceptualisations regarding co-curricular, work-integrated and service learning and internships. The consequent long debates slowed down implementation. By developing institutional policies on experiential and work-integrated learning in a consultative way, a common understanding of terms and other elements of the initiatives was fostered. Given the fact that the policies are now more than five years old and that policy changes have taken place nationally regarding experiential learning, NMMU plans to revisit the policy and to adopt a broader definition of what counts as experiential learning.

Limited funding to monitor and quality assure experiential learning in the workplace. One way of rising to the challenge was to link such learning to prescribed modules/courses and to then include a fee/levy for this in the module/course fee. At a national level, attention is being given to how best to fund service and work-integrated learning to ensure that appropriate monitoring and quality assurance takes place.

Given that many of NMMU’s students come from economically disadvantaged backgrounds, students increasingly call for free or subsidised transport when they have to travel to work or community settings to undertake experiential and/or co-curricular learning. This is a challenge that NMMU is still grappling with as it is a costly venture to subsidise transport for students.

Given the economic downturn, some employers who provided experiential learning places had to withdraw. This made it difficult for students to get work placements to complete the experiential learning portion of their qualification. NMMU responded to this challenge in various ways. In some cases, more on-campus work opportunities were created. In other instances, more emphasis was placed on simulated learning than work-based learning. Yet another approach was to seek new partners to provide experiential learning opportunities for students.

As both co-curricular and experiential learning endeavours scaled up, so the need for a comprehensive database became a necessity (to capture what students were doing, what they were learning, where they were gaining their learning, and so on). Funding and expertise had to be found to develop these electronic databases, which are integrated with the University’s student information system. An integrated database makes it possible to draw demographic and academic performance information about students who undertake experiential and co-curricular learning.

**Embedding the innovation**

Both co-curricular activity and experiential learning are University-wide. Experiential learning is managed by means of a decentralised integrated management model composed of:

- the co-operative Education Unit within the Centre for Academic Engagement and Collaboration;
- faculty academic staff;
- academic administration.

A central University committee approves activities and outcomes that can be recorded in the CCR.

Given that NMMU’s philosophy is to promote the importance of, and provide diverse opportunities for, in- and out-of-class learning, both experiential and co-curricular learning are core components of the student learning experience at the NMMU.

The percentage of students involved in experiential learning has grown from just over 50% of enrolments in 2011 to 65.5% in 2013. While experiential learning occurs in all faculties, it is strongest in the faculties of Health Sciences; Engineering, the Built Environment and IT; Education; and in diploma programmes in the Faculty of Science. In the Arts and Humanities, there is some experiential learning (e.g., in Journalism and interpretation/translation modules offered in Applied Languages) and some simulated learning (e.g., in Media Studies). Whereas the CCR was initially driven by the non-academic side of the university (HEADS and Student Affairs), academic departments in all faculties are currently busy mapping their activities. Most of the future growth of unique activities recorded on the CCR is likely to come from activities offered by academic departments.
**Impact and success of the innovation**

The CCR Policy is monitored by the Co-Curricular Student Development Committee which has to ensure, among other responsibilities, the quality of the process. Programme co-ordinators monitor the quality and correct recording of the specific activities for which they have responsibility.

Experiential learning is evaluated by faculty staff members and records of experiential learning are approved by academic department heads or programme co-ordinators in the normal way before sending to the Examinations Office for entry on the student's record; they are thus subject to regular University quality assurance processes. Programme Advisory Boards and professional body requirements also help ensure that the experiences are relevant. The experiential and especially work-based learning components of qualifications are further subjected to cyclical quality reviews (in a three to five-year period). Many of these reviews are conducted by external professional bodies; any recommendations feed into the subject area and are monitored by that professional body.

**EXPERIENTIAL LEARNING**

A survey conducted in 2013 found that 1,400 students had been involved in experiential and service learning (65.5% of graduates). (See earlier sections for 2011 data.)

The majority (91.3%) felt that this experience enhanced their employability (91.0% in 2011). Of those who did not participate, 92.9% felt that it would have enhanced their employability if they had done so (up from 78.6% in 2011).

A survey in 2011 by an outside body\(^41\) found the following:

- 13% of NMMU graduates found employment by being contacted by a company (often where they had done their experiential learning);
- 57% of NMMU graduates had already secured employment before graduation;
- 25% of NMMU students said that they learned about employers through experiential learning (the national figure was only 9%).

**CO-CURRICULAR ACTIVITIES:**

In 2013\(^42\) 43.2% of graduate respondents indicated that they had participated in co-curricular activities while studying, versus 17.4% in 2011. For some faculties, this was higher – Law (61%), Business and Economic Sciences (45%) and students at one campus (George campus) 52.9%. Of the students who participated, 77.5% felt that their participation had enhanced their employability.

**Success rates:** Student success rates have improved (although this is due to a wider range of interventions). According to the 2013 Annual Report, success rates for contact and distance students together increased from 77.6% in 2012 to 78.2% in 2014 (there were just over 1,000 distance students). Success rates in 2014 for contact undergraduate degrees were 78.8% and for undergraduate diplomas or certificates 75.5%. From 2011 to 2014, undergraduate graduation rates\(^43\) grew from 20% to 22.3% (whereas the norm in the country is around 20%).

**Annual Graduate Destination Surveys:** The Graduate Destination Survey conducted in 2014 for the latest cohort of graduates revealed that four months after completing their studies 51.9% were employed. Of those, 78.3% were employed in their field of study. Of the unemployed graduates, 68.8% were studying further and 28.1% were looking for work.

Over the years more than 50% of NMMU graduates find employment in the period just prior to and immediately after completing their studies.

**Additional information**

NMMU’s approach to its co-curricular record and what is contained in the record is unusual in that the top three learning outcomes per co-curricular activity (e.g., effective communication, meaningful interpersonal relationships, ...\(^43\)

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\(^{41}\) Magnet Professional Survey

\(^{42}\) 2014 graduates have been surveyed, but the data analysis is not yet complete.

\(^{43}\) The number of graduates as a percentage of head count enrolments in a given year. This is the measure used by the Department of Higher Education and Training; it differs from the common understanding of the term as the proportion of a given student intake or cohort that graduates.
intellectual growth, collaboration, professionalism, and appreciating diversity) are printed on the CCR. NMMU’s CCR has attracted national and international interest and information about it has been shared at national and international conferences and during visits to other universities, locally and internationally.

Note that the top three learning outcomes will vary from one co-curricular activity to the next. The examples given are probably the most frequently occurring.
Franklin W. Olin College of Engineering, Needham, Massachusetts, US

Jamil Salmi

http://www.olin.edu/

www.olin.edu/about/accreditation/

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Context

Franklin W. Olin College of Engineering is a young, private university located in Wellesley, just South of Boston in Massachusetts. Olin College opened its doors in 1999 with an audacious charter: offering an experimental laboratory for remaking Engineering education in the United States. It received its first students during the 2002-03 academic year. Today, Olin enrols about 150 new students every year, and has a total student population of around 600.

Olin offers ABET-accredited degrees\textsuperscript{45} in Electrical and Computer Engineering (ECE), Mechanical Engineering (ME) and Engineering (E), a flexible degree programme that lets students choose or create an area of concentration.

Olin College has been widely recognised in the US press, on TV and on radio. Several published papers have documented the experience and Harvard Business School wrote a case study on Olin. Its students have won several prestigious awards.

Description of the innovation

Olin College was set up as a student-centred institution that strives to provide stimulating educational experiences of outstanding quality and an exceptional student life environment.

Olin College operates with several innovative features. The curriculum combines Engineering, Entrepreneurship and Humanities in a unique way. Every Olin student must start and run a business to graduate, and must complete a year-long senior design project sponsored by industry. The students must also acquire leadership and ethical competencies through Social Sciences and Humanities courses. Olin students cross-enrol at Babson College (a business-focused institution) and Wellesley College (a Liberal Arts undergraduate college) for entrepreneurship and humanities courses, respectively. To ensure that all Olin graduates are successful at communication in a professional setting, all students are required to present some aspect of their academic work in a public setting at the end of every semester.

In order to identify future innovators and leaders, Olin College recruits its students not primarily on the basis of their test scores and grades but through face-to-face interviews in multiple settings, including team exercises that allow prospective students to show their passion and degree of open-mindedness.

Olin College of Engineering has defined nine areas in which the curriculum aims to develop proficiency in students by graduation, referring to these learning outcomes as the Olin competencies. They are designed to ensure that Olin graduates demonstrate capabilities consistent with the College’s mission and meet or exceed the expectations of a modern Engineering graduate. The nine competencies are the following: 1) qualitative analysis; 2) quantitative analysis; 3) teamwork; 4) communication; 5) life-long learning; 6) contextual awareness; 7) design; 8) diagnosis; and 9) opportunity assessment and development.

\textsuperscript{45} The US Accreditation Board for Engineering and Technology.
To build these competencies, Olin organises learning primarily around project-based and design-based activities performed by students working in teams. Olin College has no academic departments and does not offer tenure to its faculty members, unlike what happens in other US universities. As a result, Olin has succeeded in creating an academic culture emphasising interdisciplinary learning and educational innovation. A typical programme involves several teachers from different disciplines providing integrated courses with interdisciplinary material. In President Miller’s own words:

We have courses that have titles that people don’t normally see in Engineering schools. Principles of Engineering is one. Another is called Design Nature. And what happens is that those subjects are inherently integrated. So the subject itself you can’t get through by just learning Physics. Physics is embedded in the projects that you do, and every one of those courses is project-oriented. Students are formed in teams immediately and the faculty are formed in teams that are teaching them.

Olin’s approach embodies the concept of what specialists in the science of learning call ‘broad-based learning’. This type of holistic teaching and learning methodology does not involve splitting the curriculum into separate subject areas. Essentially the main purpose is learning to learn, with an emphasis on learning by experiment and experience. So the students are encouraged to try things to prove to themselves what works through shared tasks and the search for group solutions, rather than by being told in a theoretical way, doing rote learning, or being taught to the test.

Throughout their learning experience, Olin students receive constant assessment and feedback in the classroom. Faculty work with their students formatively to understand their needs and expectations from coursework and students often see changes to their pedagogical experiences as a result. All students are expected to be active learners and participants in the process of continual improvement. The faculty provide regular feedback to students through a wide variety of classroom activities that includes traditional Engineering learning activities such as exams and problem sets, but often the focus is on mentoring students to develop their understanding and capabilities through hands-on educational experiences, including team-based projects, based on solving open-ended problems. Students’ achievement is gauged through their mastery of all aspects of projects that progressively increase in scale, complexity and realism. The Olin experience culminates in a capstone project that engages interdisciplinary student teams in significant design problems with realistic constraints working for and with an external partner, such as a major company or international organisation. During the capstone course teams receive frequent feedback from faculty advisors and their external partner to guide their improvement. Formal channels to provide reflective feedback on their own performance and their teammates may also be provided, which helps transition them to Olin’s formal channels of self-reported assessment after graduation.

**Distinctive features of the innovation**

Olin College has made a major difference and its experience has generated interest from all over the world. In the last four years, more than 1,000 faculty members from more than 300 universities have visited Olin to observe and learn from its unique education approach. Several Engineering education programmes in major US universities, including MIT and Stanford, are working closely with Olin College to see how they could incorporate some of the principles that make the Olin experience so meaningful and relevant.

Despite being an outlier compared to most other US colleges and universities, Olin received its institutional accreditation from the New England Association of Schools and Colleges. The ABET Engineering Accreditation Commission accredited Olin’s three Engineering degrees, recognising that Olin’s nine core competencies are fully aligned with the four programme educational objectives defined by ABET as accreditation requirements.

Olin College is an undergraduate school of Engineering. The entire school was conceived as an experimental innovation to reform Engineering education.

**Drivers for the innovation**

For decades, the Franklin W. Olin Foundation generously supported Engineering and Science education since it was established in 1938. Typically, it provided support for building construction and purchasing equipment at private colleges and universities throughout the US, with the main aim of improving Engineering education. But the Foundation Board got increasingly frustrated with the lack of transformation in actual teaching and learning practices. So in the second half of the 1990s, the Foundation made a dramatic decision to move Engineering education forward more rapidly by dissolving itself and setting up an endowment for the creation of Franklin W. Olin College of Engineering.
Starting from the observation that STEM education is in crisis in the US because it fails to attract the right students, because it is teaching the wrong curriculum, and because it is using methods that are known to be largely ineffective, Olin College was established with the main purpose of training the engineer of the 21st century, “a person who envisions what has never been and does whatever it takes to make it happen”.

**Funding for the innovation**

Olin College was established on the basis of a 400 million dollar endowment representing the proceeds from the dissolution of the Franklin W. Olin Foundation. Annual income from the endowment allowed Olin to offer a scholarship that covered tuition and board and food to all its students during the first few years of operation. However, the value of the endowment decreased significantly as a result of the 2007-08 financial crisis. Even though the endowment has appreciated again to some extent, Olin College is now offering a full tuition scholarship to all its students, but they must pay for board and food.

**Barriers to implementation**

The first challenge that Olin College faced when it opened its doors was to attract qualified faculty members and top students to a totally unknown and unproven institution, considering the proximity of prestigious universities such as MIT. The leaders of the new College overcame this major obstacle through an innovative marketing campaign based on the proposition of a bold, transformational educational experience appealing to both male and female students. This is how Olin was able to recruit first-rate academics who gave up tenure in top universities and enthusiastic students with high academic qualifications on par with the requirements of Ivy League Universities.

Since the beginning, assessment of learning in the context of Olin’s innovative educational approach has been a major challenge. For several years, competency development for each student was directly measured and recorded in a subset of representative classes that covered both the core curriculum taken by all students and selected upper level courses within the majors. For the participating courses, faculty determined which of the nine competencies were key learning outcomes and reported progress in each competency for each student, using a scale from introductory to advanced. While the system did provide helpful data, this method had several flaws in its implementation, most notably a lack of shared agreement on the rubric for the ratings, so it was recently retired. The Olin faculty are currently engaged in the process of designing a new learning outcome assessment system.

**Impact and success of the innovation**

Continuous quality improvement is one of the core values of Olin College. From the beginning, the College leadership has carefully integrated both formal and informal channels for assessment. Olin’s feedback culture is strongly rooted in the initial design of the College and the student-centred partner year. In 2001-02, 30 student partners worked closely with the faculty to create the framework for the curriculum and college experience, establishing a strong connection between feedback, assessment and action. The student partners went on to become part of the first class of Olin students the following year, transmitting this culture to the rest of the inaugural class and to the classes that came after them.

Today, faculty and staff continue to collect actionable feedback from students through their daily interactions and the college has established channels that document learning outcomes and results. The assessment process continues after students graduate from Olin; alumni provide regular updates on their employment, academic, and personal development and retrospective reflections on their education at Olin. Data gathered through these channels help feed Olin’s ongoing assessment of the College’s effectiveness as an educational institution and the degree of achievement of its mission and aspiration.

Historically, Olin has used a multi-pronged approach to measuring student competency. Alumni self-report on their competency development. Data are also collected periodically from employers of alumni and graduate schools advisors. These three data sources are systematically triangulated to determine if competencies develop over time, beginning from first year courses going through to the workplace.

The self-reported alumni data continues to be captured annually. As an institution, Olin believes that learners are qualified to assess their own level of learning, at least as one data point among many. As part of a survey conducted at six months, two years and five years after graduation, alumni are asked to rate their level of mastery in 25 different areas. These 25 questions illustrate the various facets of the Olin competencies and are used to determine the level of achievement. The same 25 questions are presented to the employers and/or graduate
Olin graduates as a whole progress to the desired advanced level for each competency over time. These surveys also collect data related to their career progress and any educational advancement they have made since earning their Baccalaureate degrees, as well as information about their personal development and reflections on their time at Olin and their educational experience. These data provide context to Olin’s formal learning outcomes and helps document the other outcomes of an Olin education, such as employment rates and advanced degree attainment rates.

Aside from providing information about each student, the data obtained through this process are integrated into larger curricular-level assessment. For example, several years ago, faculty noticed an anecdotal trend that certain students, especially those going to graduate school, reported feeling underprepared in Mathematics. This was borne out by the quantitative data at all levels, along with qualitative feedback also collected from the alumni and employer/graduate school groups. This spurred the faculty to redesign the Mathematics curriculum, though it will be several years before the effectiveness of the intervention can be truly measured.

Olin faculty use a variety of tools to assess students’ contributions to their team projects. To begin with, teamwork is considered as one of the nine competencies valued at Olin. Therefore, the development of teamwork by students is carefully monitored and supported (rather than just putting students in teams and expecting them to function adequately). Beyond that, a range of tools are used to assess contributions formatively and summatively in teams, primarily including peer evaluation (using rubrics designed for specific learning experiences, as well as widely available tools such as CATME online teaming support), ‘marriage counselling’ (scheduled mid-semester meetings with teams to discuss their experiences), ‘I like/I wish’-type sessions in which teams provide constructive feedback to their teammates in a structured way, and direct observation46. Olin also believes that fundamentally a team is more than the sum of its parts; while individual contributions are considered, holistic assessment of the team experience provides greater value to the individual students.

Olin reviews its programme goals approximately every five years to determine if they still accurately represent the Olin mission and curriculum. Feedback is solicited from faculty through structured activities at faculty meetings or retreats. Based on the results of these activities, changes to the programme goals are drafted. These are then released for community input from the faculty, student, alumni, and select employers. A final draft is presented to the full faculty, who vote on adoption of the goals.

Fifteen years after the project was launched, Olin College can boast impressive results. In 2014, Forbes Magazine ranked Olin eighth in the US for highest SAT scores of incoming students. The six-year graduation rate is higher than 95% for all three Engineering degrees. Based on a survey of 130,000 students, Princeton Review placed Olin in the top 20 in 15 categories, including number three for students studying the most, and number 19 for the happiest students in the nation. The testimony of a typical Olin student reflecting on the learning culture of the College would be, “I’ve never worked this hard in my life and there’s nothing else I’d rather be doing”. Olin has been particularly successful in attracting young women into Engineering education. While the proportion of women in Engineering education is about 20% nationally, it ranges from 40% to 50% at Olin.

Olin graduates have outstanding career opportunities. According to a recent survey, 97% of Olin alumni were either employed - in a company or in a business they started themselves - or attending graduate school (22% of those at Harvard, Stanford or MIT). Companies sponsoring senior year projects often recruit the students involved as permanent employees after they graduate.

References


Olin College (nd) Senior Capstone Program in Engineering [Internet]. Available from: http://www.olin.edu/collaborate/scope [Accessed 16 March 2016].

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46 CATME, which stands for Comprehensive Assessment of Team Member Effectiveness, is a system of web-based tools that enable instructors to implement best practices in managing student teams. The tools are supported by the literature on teamwork and training, along with independent empirical research. For more information, see http://info.catme.org/
Section C. International students and learning styles across cultures

Curtin University, Perth, Australia

Dennis Murray

http://www.curtin.edu.au/

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Context

Curtin University is a large, culturally diverse university located in Perth. It has eight campuses.

Curtin moved, at an early stage, to develop an offshore presence in Asia. The University currently operates two offshore campuses, in Sarawak, Malaysia (1999) and in Singapore (2008). In addition, the University delivers a range of courses through international partners in Hong Kong, China, Mauritius, Sri Lanka and Vietnam. Curtin has 48,260 students, 15,594 (32%) of whom are international, 7,664 or half of whom are enrolled offshore.

In 2014, Curtin ranked equal 10th in the Times Higher Education (THE) list of the top 100 most internationalised universities. The University has a strong commitment to international engagement.

Curtin’s transnational delivery takes place within the broader context of a very large Australian TNE presence. By 2007, at the time the innovation was developing, more than 150,000 (or one in four) of Australia’s international students were transnational students in offshore campuses. Australian education and training was being delivered in more than 50 countries.

Enhancing the quality of teaching in offshore programmes was a priority issue for Curtin over an extended period. Curtin always had a tradition of looking outwards and was highly attuned to the need to ensure high quality teaching, especially in its overseas locations, from a professional and a reputational point of view. To this end, continuing professional development of teaching staff was perceived as essential. The innovation enabled Curtin to achieve the embedding of widely agreed quality principles in the design and delivery of its offshore teaching.

The present innovation was completed in 2013. It was a significant culmination of a long period of innovation and quality enhancement of offshore teaching for Curtin, a process that is ongoing, including professional development workshops for ‘onshore’ and ‘offshore’ staff, as well as staff of Curtin’s International Office, on the use of the quality framework.

Description of the innovation

The broad aim of the innovation was quality enhancement of Australian transnational higher education⁴⁷. The innovation and its outcomes identified, disseminated and embedded good individual and institutional practice in learning and teaching.

The initiative was targeted at achieving change and improvement not only in Curtin but also across the Australian university sector generally.

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CONCEPTUALISATION
Four university partners - Curtin University (lead institution), the University of Western Australia, the University of Adelaide and Victoria University – developed applications of the quality principles relevant to and effective for their particular transnational educational delivery models.

The project utilised an action learning methodology in which teaching staff involved in the delivery of Australian university transnational programmes were the focus of professional development. Participants on Australian campuses and at points of delivery overseas developed and implemented Action Learning projects to apply the quality principles to enhance curriculum and pedagogy.

PROGRAMME ELEMENTS
The innovation applies principles that embrace and reflect intercultural and international dimensions to teaching and learning practice.

The principles are divided into three categories:

1. principles that apply to curriculum;
2. principles that apply to pedagogy;
3. principles that apply to (staff) welfare.

There are ten curriculum principles including cultural sensitivity; responsiveness to the engagement needs of local students; evidence of quality controls; equivalence of entry and of other student standing and progress requirements; autonomy of staff to adapt curricula to local requirements; financial sustainability to ensure quality; guidelines for curriculum implementation, adaptation and renewal; and equivalence of units delivered offshore.

There are 21 pedagogy principles including culturally sensitive teaching, learning, programme design and programme evaluation practices; 'state of the art' evidence-based pedagogies; web-based and blended learning and team delivery; teaching staff communication protocols; joint academic boards; monitoring of student feedback and moderation processes; review of English language competency requirements; financial sustainability to sustain quality; routine teaching visits and exchanges; key communication and contact points; high standard student learning resources; and equivalence of teaching spaces and IT facilities.

There are 33 welfare principles covering such matters as offshore facilities and resources; professional issues; staff development; staff consultation; policy and legal matters; work classifications, rewards and recognition; expenses; written pre-departure and return requirements and plans; dispute resolution; codes of ethics/conduct; insurance; and staff equity issues.

INNOVATION OUTPUTS
The initiative together with its antecedent project has resulted in four major outputs:

1. Framework to Assist in Quality Assurance (quality principles). The Framework is included in the workshop materials (see below);
2. a model professional development workshop on applying the principles to enhance learning and teaching for delivering Australian university transnational education (TNE)48;
3. implementation of the principles (including a set of case studies) in 10 Australian university transnational programmes across a range of disciplines and models of delivery49;
4. a dedicated website containing all of these outputs50.


Distinctive features of the innovation
Rather than being concerned with how university bureaucracies, or students, respond to the issues and challenges of offshore provision, the focus of this innovation is very much on those delivering provision at the ‘coal face’. The

49 http://transnationalquality.curtin.edu.au/studies/
50 http://transnationalquality.curtin.edu.au/
approach involves a teacher professional development process that broadly enlists academics as agents of meaningful quality enhancement developed within their practical teaching environments.

The fact that the application of the principles was developed from an analysis not only of existing quality frameworks but also of practitioner experience and perspective across modes of delivery and programme types is a unique feature of the initiative and crucial for its success in practice.

The model professional development workshop is at the core of the innovation. Generally run over one day, the workshop provides an introduction to the development of the Quality Principles followed by a series of activities that share experiences and perspectives on TNE delivery; map principles to practice in teaching and learning; and develop action learning plans to implement and evaluate the principles, in order to help participants understand how to apply and to embed the principles within their particular contexts.

Drivers for the innovation

Curtin’s long experience in transnational delivery and the imperative of ensuring quality teaching drove the innovation. At the same time, while universities might be expected routinely to ensure the quality of their academic programmes, and while Curtin certainly sought to do so, Australian Government policy and quality assurance arrangements in the early to mid-2000s gave particular stimulus to this and to related innovations in enhancing transnational teaching quality.

In the early 2000s the Australian Government had received expressions of concern from some foreign governments about the quality of a small number of Australian transnational programmes in those countries.

Among other things this led the Australian Government to establish a Transnational Quality Strategy (TQS) to “protect and promote the quality of education and training delivered to other countries” and to adopt, as a key principle, that the standard of delivery and outcomes of Australian TNE programmes should be ‘equivalent’ to that required for Australian programmes onshore as prescribed by the relevant Australian quality assurance arrangements.

In parallel with the development of the TQS, the Australian Universities Quality Agency (AUQA) second cycle audits of Australian universities took as their focus ‘academic risk’, with ‘internationalisation’ as a required theme. This heightened the attention Australian universities were already giving to their transnational programmes.

In 2006, Australian universities called for the development of quality principles to inform transnational teaching and learning practice. Over the period 2008-10, team members of the current project subsequently developed these principles51. The same team went on to develop the current innovation, as the next step52.

Funding for the innovation

Curtin University itself, over an extended period, provided funds for strategic priority projects, including enhancing the quality of offshore teaching (e.g., in Mauritius in 2004). The availability of funding support through the Australian Office of Learning and Teaching (OLT) facilitated discussions about quality enhancement in TNE between colleagues in different Australian universities. Curtin staff participated in the earlier OLT funded project to identify quality principles (see footnote 47). Building on the outcomes of this earlier project, in 2010, the OLT provided funding for the present initiative which continued until 2013.

Barriers to implementation

Factors that might limit the success of the innovation include perceptions of teachers that commitment to adopting the principles in a concrete situation will increase their workload. The demands are not inconsiderable. The approach relies on participants working in teams to shoulder the burden of designing, implementing and evaluating the incorporation of the principles. Accordingly, the model professional development workshop focuses explicitly on the professional benefits flowing to practitioners from implementing the innovation. It is clear that the approach may stumble or fail if the professional gains from involvement are not convincing.

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Enlisting teaching staff as change agents contributes strongly to the success of the innovation. The initiative should be presented to teachers as an opportunity for them to use their professional expertise to meet their professional obligations. The innovation assumes that teachers will have, and wish to evidence, professional commitment to the quality enhancement of teaching and learning. It also assumes that practitioners are well placed to establish how to improve learning and teaching practice and that these educators have the expertise to carry out the implementation.

In summary, active and enthusiastic participation can be achieved if the focus is on enabling teaching staff to pursue professional goals. The approach will succeed if the activity is meaningful, valuable, affirming and empowering of teaching staff.

Providing teachers with thoroughly developed workshop materials in introducing the innovation also ensures the aims will be well understood and will aid the success of the innovation.

**Embedding the innovation**

Although originating with and located within particular Curtin disciplines, the innovation was essentially a university wide one. Crucially, it was also collegial, across a number of Australian partner universities.

Embedding the innovation in practice is being achieved through the ongoing delivery of workshops ‘onshore and offshore’ to staff of Australian universities involved in transnational education. These staff are embedding the innovation in their own practice through action learning projects, involving colleagues who then do the same. The process is continuous.

In addition, and as a deliberate objective of the original project, the innovation has extended beyond Curtin to other Australian universities. The 10 institutional case studies demonstrate successful uptake and application of the Principles across four Australian universities across a range of disciplines and modes of TNE delivery.

**Impact and success for the innovation**

Formative evaluation was ongoing throughout the life of the project. The project incorporated consultative feedback mechanisms for participants to evaluate project aims, approaches and outcomes. Cross-case evaluation of reports on the action learning activities was undertaken to determine the success of the initiative and refinements of quality principles. Participant feedback from these evaluation processes indicated significant quality enhancement of Australian university TNE teaching and learning as a direct result of the implementation of the quality principles.

Additionally, there was a consistently positive response to the workshops and the workshop materials including the quality principles. There was strong agreement in workshop evaluations that the action learning projects enabled participants to enhance the quality of their teaching and learning approaches and processes. There was also strong agreement that the action learning projects promoted sustainable collaborations beneficial to delivering teaching and learning quality.

**Additional information**

It may be difficult for practitioners to apply quality frameworks that are not clearly relevant to their professional situations. The point is that embedding quality requires enhancements that are contextual, meaningful in practical terms and organic in the sense of requiring action learning. The innovation should have durability over time.
Central European University, Budapest, Hungary

Andrée Sursock
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Context

Central European University (CEU) is a postgraduate, research-intensive institution, specialising in the Social Sciences, Humanities, Business, Law and Public Policy. It was founded in 1991, after the fall of the Berlin Wall.

CEU is accredited in the US and Hungary. It is an international university with a regional mission: to be the voice of democracy and open society in Central Eastern Europe. It emphasises “internationalisation at home”.

Facts and figures:

- 1,400 students, from around 100 countries;
- 200 permanent academic staff, from 40 countries deliver 85% of the curriculum;
- 200 visiting professors deliver 15% of the curriculum;
- 400 full-time and part-time administrative staff members, from 35 countries.

CEU is committed to promoting the values of the open society and self-reflective critical thinking in Central Eastern Europe and in other parts of the world that are experiencing emerging democracy. This innovation was identified through reputation and word of mouth, as well as its unique international makeup and democratic mission.

Description of the innovation

CEU states that it is “one of the most densely international universities in the world”. All CEU students are international and CEU is a university that is "international by design". The international character of the university is central to every decision that is made, whether it is about new study programmes or the content of courses. Thus, all courses must integrate a comparative, regional dimension (i.e. Central Eastern Europe) in a multidisciplinary way. The curricula of the degree and non-degree programmes include several elements:

- relevant theory and methods for each discipline or interdisciplinary programme;
- comparative aspects informed by the research of CEU faculty and graduate students, which consider real-life issues, including regional and national issues or case studies that are relevant for the countries of origin of the students taking a given course, while maintaining a regional or global comparative perspective. Almost all students have comparative elements in their MA theses or PhD dissertations, almost always involving their countries of origin. Almost always, students study real-life situations, issues, or problems in these countries, using advanced conceptual framework and methodological tools that are not linked to a specific region.

CEU degree programmes and curricula are established and then developed (eventually also discontinued), guided by the mission of CEU and the particular institutional profile of a graduate-only, international university. The degree programmes must contribute to the study of the ‘open society’ aspects (from Philosophy to Constitutional Law, and from Public Policy to History and Network Science), to the training of a variety of professionals who could make a contribution in the region, and to undertaking research, policy and other projects with a direct impact on ‘open society’ aspects. There are also non-degree programmes, based on the same institutional approach, such as special programmes for the Roma population.

CEU also stimulate cross-disciplinary teaching and research that are also thematically oriented. For example, the University plans to offer four courses co-taught by at least three professors from their different departments in the areas of social inequalities and social justice, energy and society, and governance. All master students of the
University will be required to take at least one of these four courses, irrespective of their department or programme.

In addition to coursework, all the students receive research training and undertake supervised research, or collaborative research. CEU create conditions for PhD candidates to have a practical internship (which is not research) as part of their doctoral training. CEU has mandatory internship requirements for some of the MA programmes and intends to make it possible to all MA students to have practical internships, working for a few months or up to a full year with NGOs, international organisations, companies, governments, etc. around the world. All PhD candidates have the possibility of teaching for at least a semester at another university (CEU Global Teaching Fellowship Program).

CEU has been committed to supporting research with applied and comparative elements; that is, research that tackles real issues in the region. This orientation has been promoted via mentoring and public events.

To ensure that regional issues are set in their global context, CEU recruits internationally for both academic and administrative staff positions. They are advertised internationally and salaries and benefits are competitive and attractive.

CEU recruits students from within and from outside the region. Students are selected on the basis of their academic records and their commitment to public service.

**Drivers for the innovation**

Intellectuals and former dissidents from the region (e.g., Vaclav Havel and Bronislaw Geremek) imagined a university for Central and Eastern Europe that would overcome the traditional separation between the academic and the political arenas. Soros Foundation's Open Society provided the funding and the open society vision.

**Funding for the innovation**

The University was totally reliant on the Soros funding until around 2000 when it received an endowment. The current budget structure is as follows:

- a private endowment provides 70% of CEU's yearly budget: the major part of this comes from Soros; a smaller portion comes from other sources to fund a European teaching award and student scholarships;
- approximately 20% of its budget derives from competitive EU funding (e.g. a total of 12 ERC grants, for 200 permanent academic staff members);
- 9% derives from fundraising from foundations (mainly from the US), corporations, and individuals;
- about 1% is derived from tuition fees.

Although a private university, CEU offers full financial support to all its PhD students, and full or partial support to the majority of its Masters students.

**Barriers to implementation**

1. **Gaining accreditation:**

The main challenge for the University was to gain accreditation. Accreditation frameworks in the region were designed exclusively for national institutions, and left no place for a regional, non-national university. The University was first opened in Prague; it opened a unit in Warsaw and then moved completely to Budapest in search of a home. The Hungarian accreditation process was formalistic and required that the curricula address national elements (e.g. Hungarian Law), and be taught in Hungarian. The process was not friendly to innovative curricula.

This challenge was overcome by first seeking and obtaining US programme registration (New York Department of Education) and institutional accreditation (Middle States Commission on Higher Education).

Furthermore, the launch of the Bologna Process helped as from the beginning CEU had a “Bologna structure” (Masters following after the Bachelors, and then PhD) and the Bologna Process gave momentum to European partnerships.

The Hungarian accreditation agency had to adapt to this new situation and to accredit CEU, which was in line with European frameworks. CEU was in the end allowed to apply for accreditation in Hungary and finally received it in 2015.
2. **International recruitment:**
The University experienced difficulties with international recruitment with respect to certain areas (e.g. Middle East and Islamic Studies) or in seeking to recruit academics from Africa to teach courses with African content.

Recruitment was helped by the creation of the European Research Council (ERC) and the commitment of CEU to provide support to staff applying for ERC grants. This helped attract good researchers whose success contributed to building CEU’s reputation.

3. **Policy engagement:**
CEU has been committed to supporting research with applied and comparative elements. This orientation has been promoted via mentoring and public events. But there are issues of resources and conceptual design as well as the small size of CEU. Thus, CEU encountered some difficulties in framing its commitment to policy engagement and translating it into reality:

- a first step was to create a department of public policy to look into the policy implications of the work being conducted in other departments;
- the next step saw the creation of a School of Public Policy;
- the current plan is to develop university-wide intellectual teams, building on the strengths of the existing departments and research centres. These are interdisciplinary teams that will work on four broad, predefined themes (social minds, governance, inequalities and social justice, and energy and society). They will conduct joint research, joint teaching and joint civic activities. As an example of outreach activities under the social mind theme, CEU is thinking about launching a ‘mobile think tank’, a bus with students and academics who will travel through the region to organise workshops and events, as well as offer consultancy activities in targeted localities.

**Embedding the innovation**

The international component has been a integral part of the institution from the outset.

What has been embedded, however, has been the civic engagement component – the social relevance of research and social engagement. This has been driven by the central leadership.

**Impact and success of the innovation**

The University is accredited by the Middle States Commission on Higher Education whose process is mission-driven but it does not include an impact analysis. CEU is also accredited by the Hungarian Accreditation Committee.

CEU has a strategic development plan operationalised in a yearly action plan. CEU conducts yearly assessments of its activities as part of its planning process.

The University had a seven-page document that identifies sets of metrics for each strategic goal.

In the area of internationalisation, for instance, the following performance indicators are taken into account:

Students: application numbers and geographic representation; applications and enrolled students data in the context of the ‘traditional region’ vs. ‘the rest of the world’ and Student Exit Survey data (to measure efficiency and effectiveness of services provided to students).

Faculty: Faculty members by nationality (resident and visiting); gender data comparison per academic rank and number of female conference speakers.
University of Melbourne, Australia

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<td>Engagement with the community and co-development of curricula</td>
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Context

The University of Melbourne is a large, research-intensive university, with 55,000 students. 14,165 or 27% are international, all studying on campus in Melbourne. This represents the largest number of international students on a single campus of any Australian university.

Melbourne is ranked as the top Australian university in the ARWU53, THE54, and QS rankings (in 2014, its global rank on each of these systems was 54, 33 and 31 respectively).

A feature of higher education in Australia is the cultural diversity of the student population. The absolute number of international students studying in Australian universities increased dramatically in the early 1990s, as did the number and diversity of countries represented among the student population. The average proportion of international students in Australian universities exceeds 20%, the highest proportion within the OECD (excluding Switzerland).

This diversity poses key challenges. Internationalisation of the curriculum (IoC) has become integral to the internationalisation strategies of Australian universities generally, not least at the University of Melbourne.

The University has a long established focus on and framework to support excellence in learning and teaching, reflected by an institutional set of Nine Principles Guiding Teaching and Learning, the fourth of which is “an international and culturally diverse learning environment”.55

Furthermore, the University of Melbourne claims that its graduates are developing attributes of global competence and global citizenship, allowing them to work in linguistically and culturally diverse situations anywhere in the world. Fostering engagement between domestic and international students is critical to achieving this objective.

Strategies to enhance the learning of international students are described in an “Orange Guide” produced by the CSHE and currently being updated.56

The matter of international student engagement and success has been so significant for Australia that substantial national funding has been competitively allocated to investigate and implement innovations in higher education learning and teaching involving international students.

Staff of the University’s Centre for Studies in Higher Education (CSHE) devised the innovation in 2008. It built on earlier work and related work being undertaken elsewhere (e.g. by the International Education Association of Australia and its Internationalisation of the Curriculum Special Interest Group), particularly in the area of English language competence of international students. The Centre conducts higher education institutional consultancy and policy development within Australia and internationally.

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53 http://www.shanghairanking.com/
54 https://www.timeshighereducation.com/world-university-rankings
The innovation was conducted with two other but quite different Australian universities, both with large numbers of international students: RMIT University and Victoria University. The surveys, group interviews and discipline spread took account of the diversity between the institutions. Diversity was a critical feature of the innovation in testing the applicability of the innovation’s outcomes to very different types of university. The project team was interdisciplinary and included academics from Humanities, Science and Business.

**Description of the innovation**

The primary aim of the innovation was to identify, devise and disseminate research-based and easily applied practical tools to enable teaching staff to frame effective learning engagements between domestic and international students.

Research had shown that even well-established co-/extra-curricular activities involving international students were not producing desired learning and social outcomes. The project explored how peer interaction can be designed and used within the teaching and learning environment to enhance interaction among students from diverse cultural and linguistic backgrounds so as to achieve improved educational and social outcomes. The focus was on more purposeful classroom engagement rather than simple reliance on co-curricular/social engagement.

Underpinning the innovation were the perceived benefits of such peer interaction - increased awareness and understanding among the student groups of different perspectives including:

- enhanced preparation for the workplace;
- improved English language skills of international students; and
- a greater sense of belonging among international students especially.

The innovation drew on familiar, well-established research evidence but, crucially, tailored this to actual teacher practice. Existing research stressed that effective classroom engagement between domestic and international students required finding ‘common ground’.

The classroom is the main location where students can find common ground, as that is where they share a subject interest and a learning environment. As a location the classroom presents opportunities for international and domestic students to make contact and interact in ways that can enhance learning. The challenge was to help teaching staff to organise their teaching and assessment tasks to support such productive interaction.

**Programme elements: The Interaction for Learning Framework**

The critical innovation is a six-dimension conceptual framework for learning. The framework, which underpins each of the associated learning and teaching resources (see below), has a number of core principles. It:

- acknowledges and capitalises on student diversity as a resource for learning and teaching;
- engages students from diverse cultural and linguistic backgrounds within the learning context in a variety of ways;
- embeds interaction in curriculum planning and links to teaching, learning and assessment;
- promotes peer engagement through curriculum-based activities; and
- recognises the variety of ways that interaction can be utilised across different learning contexts.

Each of the Framework’s six interrelated dimensions represents a particular aspect of learning and teaching associated with creating the conditions for effective peer interaction. These dimensions are:

**DIMENSION 1 – PLANNING INTERACTION**

Planning interaction involves academic staff including peer interaction activities in the design of their subject. This dimension is fundamental to each of the other five dimensions.

**DIMENSION 2 – CREATING ENVIRONMENTS FOR INTERACTIONS**

The focus in this dimension is on the strategies that can be used to increase students’ participation in the first weeks of classes. The main goals are to develop students’ confidence in interacting with other students from diverse cultural and linguistic backgrounds, and to provide opportunities for students to move out of their cultural comfort zones.

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57 Learning experiences that complement, in some way, what students are learning in the curriculum.
DIMENSION 3 – SUPPORTING INTERACTION
In this dimension, learners are informed about the expectations and benefits of working across different cultural and linguistic groups for their learning. Its main purpose is for students to understand the value of peer interaction and to set up the ground rules and expectations for learning tasks.

DIMENSION 4 – ENGAGING WITH SUBJECT KNOWLEDGE
The main purpose of this dimension is to use linguistic and cultural diversity to engage with subject knowledge. This may include drawing on different skills, learning strategies and cultural experiences to co-construct subject knowledge.

DIMENSION 5 – DEVELOPING REFLEXIVE PROCESS
In this dimension learners move beyond individual understanding so that they can utilise the knowledge base available within the community of learners. The key objectives of the fifth dimension of interaction are to promote higher levels of interaction and cognitive engagement through peer feedback and assessment to enhance students’ critical thinking and reflection on their learning.

DIMENSION 6 – FOSTERING COMMUNITIES OF LEARNERS
In this dimension, learners demonstrate independence and are able to move across different cultural contexts.

Innovation outputs and examples

The outputs from the initiative include:

- A DVD, *Finding Common Ground*, featuring the voices of academic staff and university students from a range of Australian universities. The video outlines practical ways of increasing interaction in the classroom between international and domestic students. It introduces the *Interaction for Learning Framework* and advocates for the view that students with an international background are a resource. The video covers a range of topics and challenges including:
  - language difficulties;
  - rural students;
  - group work and teamwork;
  - online communication;
  - peer mentoring;
  - assessing for interaction;
  - valuing local factors as well as international ones.  
- A Guide for Academics, offering practical suggestions for enhancing practice, and illustrated by multiple specific examples under each of the six Dimensions. These examples cover such matters as devising problem-based learning tasks with interaction embedded in curricula; introductions and ‘ice-breakers’ in the first session; Initiatives specifically designed to build learning communities; group projects, with knowledge of different cultures as a core component of the project; using self and peer-assessment; and initiatives specifically designed to build learning communities.  
- The Guide for Academics also includes a background paper Finding common ground: Challenges and opportunities for enhancing interaction between domestic and international students. Pages 37 to 43 describe some of the practical methods used by academic staff to implement the principles and achieve a ‘common ground’.  
- A flyer for students, highlighting the benefits of involvement in culturally diverse peer groups (p. 53 of the Guide for Academics).

These resources are available on the CSHE website: [http://melbourne-cshe.unimelb.edu.au/#resources](http://melbourne-cshe.unimelb.edu.au/#resources).

Distinctive features of the innovation
The innovation provides:

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1. a flexible, stepped, easy to implement Framework to assist teaching staff to design and deliver structured engaged learning within the classroom. The framework allows for simple and more complex forms of engagement;

2. one advantage of the Framework is that very little extra effort is required outside normal teaching practice, thus facilitating acceptance and take up by teaching staff;

3. the associated 15-minute DVD is an attractive and proven way of introducing the Framework and demonstrating how it might be used. The DVD is a particularly useful resource for professional development of teaching staff.

**Funding for the innovation**

While originating with the University of Melbourne, the project received national financial support through the Office of Learning and Teaching (OLT), which allowed for the involvement of the two other partner universities. OLT financial support ended in 2010.

**Barriers to implementation**

On the teaching side, the main impediment was the perception that teaching staff have limited time available to foster interaction, particularly when classes are large and the curriculum 'content' heavy. Such conditions tend to discourage staff from prioritising peer interaction within the curriculum, at least in any planned and systematic sense.

In relation to student learning, the challenges to interactions included the limited time students spend on campus due to competing commitments such as paid work; and lack of a ‘common ground’ between domestic and international students due to differences in academic priorities and learning experiences, as well as in their linguistic and cultural backgrounds.

The innovation addresses these challenges and demonstrates the ways in which peer interaction can be promoted to tap into the potential benefits of diverse student communities.

One of the greatest challenges is the non-mandated nature of the innovation and its solutions. Experience suggests that the innovation gains greater traction when engagement between domestic and international students becomes part of institutional strategy (e.g., embedded in learning and teaching and internationalisation strategies and plans). Implementation of the innovation in the University of Melbourne, for example, has become more achievable given current higher education discourse about identifying student learning outcomes, and aligning teaching and learning practices to assessment that measures learning outcomes. Support material is currently being developed that offers academics practical advice about how this can be done across different disciplinary learning contexts.

**Embedding the innovation**

There have been pockets of take up of the innovation within the University. Knowledge of the innovation is widespread, through dissemination efforts by CSHE, including engaging with Faculty Associate Deans and with learning and teaching committees, as well as providing practical advice to academics. The Framework is being used within the Faculties of Arts, Medicine, Sciences and Engineering.

A guide for academic practice is currently being developed for the University drawing on the Framework. It outlines different forms of internationalisation, which can be implemented in the curriculum via programme/curriculum design, and learning techniques. Examples and sample learning outcomes are provided in the model, and a series of case studies then highlights the model in action through in situ examples from different Faculties/Graduate Schools.

**Impact and success of the innovation**

Dr Janette Ryan who was working at Monash University, Oxford University and as Director of the ‘Teaching international students project’ for the UK Higher Education Academy at the time, conducted a formative and summative evaluation of the project and commented:
The final report and the supporting documents... will inform the enhancement of teaching and learning practices to encourage interaction and engagement between international and domestic students in higher education contexts. I believe that these materials will make a valuable contribution in this area. A positive feature of the project is its development of a conceptual framework and principles for reflection and action by academics... the materials and suggestions will have broad appeal across different types of higher education institutions... I would also suggest that the resources be placed on the HEA/TIS website and database as they would be a valuable resource for higher education practitioners worldwide.

While metrics have not been used to measure success or impact, observations confirm greater interactions between the groups, improved use of English among international students, improved collegial peer feedback between members of the groups and improved employability skills. As mentioned above, the University of Melbourne is moving towards integrating the innovation through an assessment framework by aligning teaching and learning practices to assessment that measures learning outcomes.

Across Australia impact may be measured by the three extension grants from the Office of Learning and Teaching to embed Finding Common Ground within other universities, and through the numerous invitations the innovators have received to speak to universities about the Framework and how it can be incorporated into teaching practices. Internationally, a consortium of universities lead by Tohoku University has translated the project into Japanese and is developing Japanese case studies. There have been numerous requests for the materials from Canada, US, France, Singapore and New Zealand.

The presentation of the DVD at various international conferences has resulted in communications between the project innovators and universities in Asia, the UK and Canada, interested in the innovation and in accessing the resource materials for use in their institutions. Notably also, HEA produced a short paper Mixing, learning and working together drawing on the findings from ALTC study.60

60 https://www.heacademy.ac.uk/sites/default/files/resources/mixing_learning_and_working_together.pdf
Section D. Recruiting new types of domestic students and the pedagogical developments they require

Institut de Sciences Politiques (Sciences Po), Paris, France

Andrée Sursock

http://www.sciencespo.fr/en/home

HEA topics

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Context

Founded in 1871, Sciences Po is part of the group of highly selective institutions in France, along with the grande écoles. As opposed to the universities, these are very selective institutions: they receive a higher level of funding and are rather small, while universities enrol large numbers of students, receive less funding per student and are duty-bound to admit any and all students who hold a Baccalauréat. Educated and affluent families tend to choose these selective institutions over the universities for their reputation, their more structured environment and the better employment prospects they offer.

Sciences Po enrols 13,000 students – 46% of whom are international, originating from 150 countries. It maintains a network of 400 international partnerships and offers programmes fully taught in English at both the undergraduate and graduate levels. Sciences Po trains for careers in the public service (mostly the diplomatic service) and the private sector. 87% of Sciences Po students are hired within the six-month period after their graduation and 35% start their careers abroad.

This innovation received a great deal of media attention as well as interest from the highest political level in France. This has prompted the selective institutions in France (i.e., the grandes écoles) in France to widen access, albeit in different ways.

Description of the innovation

Conventions Education Prioritaires (CEP) is an institution-wide initiative that began in 2001, initiated by the late Sciences Po Director, Richard Descoing. The programme is now in its 15th year.

When the innovation was launched, 81.5% of Sciences Po students came from affluent and educated backgrounds (i.e., children of the business elite, teachers and academics). Studies showed that for a variety of reasons (e.g., lack of information, lack of sense of belonging to an elite institution, etc.) the underprivileged students would not even try to apply to Sciences Po. Furthermore, even when they did, an analysis of the entrance examination results showed that the process was socially biased in favour of the elite. It was disadvantaging those coming from financially and educationally disadvantaged backgrounds – a key issue when only 10% of the applicants are selected.

Sciences Po signed agreements with lycées (secondary schools) located in socially and economically marginalised neighbourhoods (across France and in overseas departments) and committed to recruit their best students.

The initiative has developed incrementally over the years. Initially seven secondary schools were involved: they had been identified by Sciences Po. Today, the lycées apply to be part of the scheme. They submit an application that includes their profile and that of their students.

Sciences Po staff visits these lycées to speak to their teachers and principals. They also invite their students for an open day at Sciences Po, where they attend a lecture and meet current students.
The lycées offer weekly workshops to any student interested in attending Sciences Po. These workshops prepare the students for the entrance examination. The lycées are responsible for organising the first examination round, which results in a first selection of students. Thus, the students take their examination in a familiar environment; this has also the advantage of reducing the cost to the non-Parisian students who do not need to travel to Paris. Those who make the first cut come to Sciences Po for an oral examination that will test their intellectual potential and interest in political science.

Most of the time, the lycées finance the trip to Sciences Po for the oral examination. For lycées based in New Caledonia, La Réunion, French Guyana and in the Caribbean, travel and subsistence costs are covered by their regional authorities.

Those who are admitted and are in need of financial aid, receive a grant from the State as well as additional financial support from Sciences Po (which amounts to 75% of the State grant) and a tuition fee waiver.

In 2004, Sciences Po tripled its tuition fee and introduced a sliding-scale scheme whereby, in effect, the students from privileged backgrounds subsidise the underprivileged ones (this is the only institution that practices this in France).

The students admitted through this route are mainstreamed from the beginning. No additional courses are offered but students can ask for extra support. Specifically,

- during their first year, all incoming students can pair up with a tutor who will provide assistance navigating the institution (providing information about the services, the library, the different buildings, etc.), as well as academic advice on how to organise ones’ workload, etc.; the methodology and training for oral presentations and an introduction to student life (student associations, etc.);
- during their second year and as Masters students, Sciences Po offers a mentoring programme enabling the mentee to ask a professional all questions relative to careers, jobs and work experience. The professionals work in such major organisations as LVMH, L’Oréal, HSBC, KPMG, etc.;
- those who need extra assistance can find it at the equal opportunity office. The office also organises socially enriching activities for these students (company visits, cultural events, etc.).

**Distinctive features of the innovation**

This initiative is different from outreach to secondary schools. It is a partnership of an elite institution with a select set of schools that are entrusted with the responsibility of preparing and selecting the students. This initiative has had an impact on the lycées that are involved in the scheme: the overall results of their students at the Baccalauréat have improved and their students are applying to Sciences Po and to the grandes écoles.

**Funding for the innovation**

Private funding includes the differentiated tuition fees and fundraising: 820 private donors, 20 foundations and 108 companies participate in the development of Sciences Po for a total of 5.2M euros, of which 2M euros are allocated to the scholarship department budget.

Companies have endorsed the innovation and provide mentors to the students accepted through this route.

**Barriers to implementation**

In order to be allowed to introduce this scheme, a new law had to be voted in the French parliament and the initiative had to be accepted by the two highest decision-making bodies of the institution: the Governing Board (Conseil de direction) and a Commission paritaire, which includes an equal number of staff and students. There was a great deal of opposition: this initiative went against the grain of French political culture that is set against the principle of affirmative action. It constituted a first in France.

**Embedding of the innovation**

The current Director of Science Po, Frédéric Mion, has set a series of goals for its future (in 2022 Sciences Po will be 150 years old). One of them is to continue to promote social diversity by enrolling nearly 30% of the students through this route.

Sciences Po takes particular pride in not perpetuating any form of exclusion and privilege. It manages to attract candidates from many different countries and various financial backgrounds. The ambitious scholarship policy developed in the last 10 years enables it to finance part of the living expenses of 30% of the student body.
Impact and success of the innovation

Since the commencement of the initiative:

- 1,448 students from 106 high schools have been accepted through this route over a 14-year period;
- their progression is similar to that of their peers, although there is a slightly higher number who repeat the first year. This concerns more particularly students who are far away from their families;
- the ‘affirmative-action graduates’ find a first job as easily as their most privileged colleagues;
- the proportion of students from elite families is still strong at Sciences Po but is now down to about 68%.

Sciences Po has been evaluated by the French evaluation agency. Researchers have also studied the impact of this initiative. The researcher Vincent Tiberj analysed the impact of the programme on job placement in 2010.61

There are two further evaluation studies currently under way. Results will be available in 2016.

References


University of Queensland, Brisbane, Australia

Dennis Murray

www.uq.edu.au

HEA topics

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Context

The University of Queensland (UQ) is a large, research intensive university with 50,749 students, 37,631 of whom are undergraduate students. UQ is one of three Australian members of the global Universitas 21 network and a member of the Australian Group of Eight (Go8) universities. It ranks in the top 100 of world universities (ARWU 85; THE 63; QS 43).

The UQ strategic plan is organised around three pillars - learning, discovery and engagement. UQ has a strong focus on teaching excellence, winning more Australian Learning and Teaching Council Awards for Teaching Excellence than any other university in the country.

UQ aims to be recognised as an Australian leader in innovative online learning, to support academic staff in the use of appropriate and proven technology-enriched educational approaches and to lead Australian and international policy development in online learning.

The innovation was developed in response to the increased massification of the Australian higher education system (440,000 students in 1989; 1.3M students in 2013). This growth, together with worsening student-staff ratios, has dramatically changed the educational landscape in universities, including the University of Queensland.

Description of the innovation

The innovation sought to develop a model for promoting strategic change in higher education institutions for the enhancement of student learning in STEM, in particular in large enrolment courses through the use of enabling technologies to facilitate deeper learning. Specifically the innovation aims to:

➢ promote active learning in first year STEM disciplines and ease student transitions;
➢ provide learning experiences which are interactive, interdisciplinary, contemporary and challenging;
➢ enable students to develop metacognitive skills that foster deep thinking;
➢ enhance student engagement and learning outcomes in the context of large first year classes.

There were two related objectives:

➢ to engage students not only with subject content but also with each other; and
➢ to achieve both interdependence and enhanced student independence.

ITS ORIGINS

The innovation was developed in the School of Chemistry and Molecular Biosciences where the first year experience in Science, Technology, Engineering and Mathematics (STEM) disciplines was recognised as warranting particular attention. This was partly a response to the recognition by individuals, universities and by governments of the centrality of STEM education to the solution of pressing world problems.

The Chemistry School is involved in a large amount of service teaching for other UQ Faculties and Schools including Science, Medicine, Engineering and Agriculture. The first year Chemistry courses are the building blocks for many disciplines and are taken by large numbers of students whose backgrounds and whose ultimate discipline and career destinations are very diverse.
Large (>1000) first year classes posed a challenge to instructors aiming to enhance learning in such diverse student cohorts. Diversity included large numbers of international students, because of a twinning programme in Malaysia at the time that was integrated with courses at the UQ Brisbane campus.

Collaborative learning tasks were already routinely used, with course design employing high-impact learning practices to enhance engagement and to promote collaborative learning. This is especially important for students in the professions (engineering, medicine, science) who will be required to work as part of teams where each individual completes a task that must be integrated into a larger solution by the team. They will also be required to critically review the work of other people/teams as part of these professions. The innovation and the workflow associated with it are designed to assist students to experience and to develop these skills.

The project was conducted with Purdue University in the US. An existing collaboration with Purdue through shared challenges and innovations in teaching large first year cohorts provided expertise in the learning design (Purdue has a history of excellence in engineering education and cooperative group work initiatives).

Contemporary students’ learning experiences are challenged by large lecture classes, with individual course (i.e. subject) enrolments as large as 1500 at UQ. There is wide diversity also in students’ backgrounds, preparedness, level of knowledge, social and cultural and linguistic make up and career aspirations. In addition, the transition from secondary school means students need to cope with more difficult concepts and a range of unfamiliar teaching methods and learning expectations.

Limited resources mean university teaching staff and their institutions are challenged in responding to a very large and diverse student body. High levels of student attrition during and following the first-year at UQ and elsewhere had indicated that more needed to be done to ease new students into the university environment and to address student transition in the first year curriculum.

The innovation involved development of a new approach to collaborative inquiry learning through the design and implementation of interdisciplinary scenario inquiry tasks. The innovation drew on literature and current pedagogical practices relating to instructional design using ICT and the integration of collaborative and active learning strategies to foster communities of learners and to better engage first year students (including the work by Kift62, which is the subject of one of the other Australian case studies in this series).

**PROGRAMME ELEMENTS**

The main innovation involves the use of the web-based interactive Collaborative Assessment (iCAS) to generate and manage Interdisciplinary Scenario-Inquiry Tasks (IS-ITs). These are collaborative active learning tasks set in interdisciplinary contexts designed for very large classes. The scenario contexts were chosen to have potential relevance to the wide range of programmes represented in the student enrolment (including Biotechnology, Health Science, Engineering, Pharmacy, Biomedical Science etc.) and hence to be inclusive. These tasks have been designed to create interdependency between students working collaboratively in groups of four. The IS-ITs are discussed in detail below.

Facilitation and assessment of inquiry learning in large enrolment courses is too complex and time-consuming for a single academic course coordinator to manage manually. Consequently, iCAS, a web-based task-management system manages these processes.

iCAS facilitates flexible group formation enabling students to choose both their scenario and their group membership. The technology enables responsive sign-on, i.e., students can see how many spaces are available in each scenario group. This would not be possible manually.

Interdependency within groups is generated by combining an individual research quest, which requires students to generate information files, with a collaborative challenge that relies on integration of all the individual sets of information to generate a collective product.

The diversity of student interests, academic ability and programmes requires a tactical combination of teaching strategies. The delivery of STEM courses is often content driven, with summative exams leading to students adopting a surface approach to learning. A goal of this project is to enable students to develop metacognitive skills

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62 At James Cook University and Queensland University of Technology.
that foster deep approaches to learning while being engaged in a task that challenges, motivates and promotes independent learning.

This is best achieved by designing an active learning experience that addresses the diverse needs of the cohort and engages them in the Science learning cycle. The instructional design has drawn on literature across a number of current pedagogical strategies relating to the integration of collaborative and active learning strategies to enhance the formation of communities of learners.

Another critically important element of the innovation is the use of peer review. Collaborative inquiry learning requires that students analyse the work of their fellows. First year students do not often see the work of their peers. Peer review is intentionally built into the task as a way of providing formative feedback.

**EXAMPLE OF APPLICATION**

In 2010, applying guiding principles in cooperative group work, open inquiry and peer-assessment, and using the iCAS system, group work tasks were assigned for a large number (>1,300) of first year Chemistry students. Students formed 346 groups of four and engaged in one of 25 contemporary scenarios of their choice. They worked collaboratively to develop a response to a challenge question with no defined right/wrong answer (an example of open inquiry) encouraging deeper thinking and communication skills. Each student peer-reviewed the reports submitted by four other groups. While increased relevance was a significant positive outcome, working with peers was valued most by students indicating the task had addressed a transitional issue:

> The [IS-IT Learning] task was definitely a great and useful activity for a first year course. Besides researching topics related to Chemistry and understanding how Chemistry is applied to some real case scenarios, the group work was an added benefit. It is great to interact with other students on a research task, not only to get to meet new people but also to improve group work. Since group work is a component of many subjects throughout uni years, it is great for first year students to gain some practice in working in a group. [A CHEM1020 Student, 2010]

The innovation addresses student diversity, uses task relevance and motivation of students to enhance engagement, and uses online learning, blended with classroom collaborative learning activities, to enable independent learners to demonstrate deep approaches to learning by promoting reflection, analysis and synthesis.

The key elements of the innovation are:

- collaborative small-group work can be implemented in very large STEM courses to address issues of student engagement and diversity;
- engagement is enhanced when students are able to self-select into contexts and group membership; this increases investment in learning outcomes;
- peer review is a critically important component. Peer review is intentionally built into the task as a way of providing formative feedback;
- a task-management technology enables academics to facilitate and assess collaborative tasks effectively;
- technology-enhanced learning is most effective when the facilitation team includes the course coordinator, IT support and teaching assistants;
- regardless of how streamlined the system is, engaging students in inquiry-based methods is time consuming. Work-allocation and rewards systems need to take this time into account.

**IMPLEMENTATION ELEMENTS**

A *Handbook of Scenario Resources for Inquiry learning in STEM* explains how the innovation may be implemented and contains a compilation of inquiry-based tasks set in contemporary contexts developed as part of the initiative.

The basic principle of an IS-IT is that students can select their scenario and form their own groups. Each IS-IT comprises a context, four individual quests (IQs) and a metaquestion. The task design involves each group member nominating one of the four IQs and then researching the related information. Once they have completed this phase of the task, the group works collaboratively to develop a response to the metaquestion.

The *Handbook* includes a table to assist teachers to identify and align task scenarios and their relevant STEM discipline areas:
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The *Handbook* is used to inspire and assist teachers to design student-centred activities. The scenario inquiry tasks can be utilised in a number of ways, including, but not limited to the original complete format, contexts for problem-solving exercises or individual research tasks.

**INNOVATION OUTPUTS**

1. The alpha and beta versions of iCAS. These allow for translation into other institutions to manage any task that involves collaborative group work and peer assessment;
2. a template for the implementation of interdisciplinary collaborative active learning tasks in a STEM course;
3. 27 contemporary scenarios that can be adopted or adapted for any problem-solving or inquiry-based learning activity;
4. an evaluation framework to explore the learning outcomes from collaborative active learning tasks through analysis of collective writing products;
5. guidelines for a capacity to change the way that large courses are presented. Importantly, innovative approaches to student learning and assessment can be implemented with initial resourcing and support.

The *Handbook* and other resources are available from the OLT website.

**Distinctive features of the innovation**

The innovation provides an efficient and effective way of managing the design and delivery of interdisciplinary collaborative active-learning tasks for large classes in the Sciences. It brings together multiple frames of learning - socio-scientific thinking across multiple disciplines, cooperative group work, and peer input, review and assessment through the innovative use of available online technologies.

Interdisciplinarity is critical to the innovation, since students come from various faculties and this enables each student to bring a distinctive element that encourages use of diverse perspectives, evidence and competences in a team setting to solve a shared challenge problem.

**Drivers for the innovation**

A particular driver was the desire to incorporate a peer review element as a critical element of collaborative inquiry learning.

**Funding for the innovation**

While the School of Chemistry funded the pilot project, the innovation was progressed more widely in UQ between 2008-10 as the result of receipt of a competitive Australian Learning and Teaching Council grant.

**Barriers to implementation**

A number of factors are critical for success and uptake of the innovation:

- projects using the innovation need to produce evidence of successful learning outcomes to aid dissemination and diffusion. Without such evidence there is no impetus for other staff to actively explore adoption or adaption of innovative products. Evaluation should be seen as a significant project component;
- a number of factors are required for the successful implementation of technology-enhanced collaborative learning. These include:
  - IT technical support to provide assistance in enrolling students in iCAS and to troubleshoot compatibility issues;
  - a team of tutors that can assist in moderation of student peer-assessment and view student reports to evaluate whether they have met the task criteria;
  - in projects where there is potential for substantial data sources, a full-time project officer completes data analysis within the timeframe of the project.

**Embedding the innovation**

This innovation was initiated within the School of Chemistry. The pilot work was set in the first level Chemistry course, a core service course with between 35-40 programmes from multiple faculties at UQ. Prior to the design-
based research approach, students were simply put into groups and assigned topics including Chemistry-based techniques. This prompted the realisation that students needed to connect to the Chemistry to find relevance/interest and be engaged.

It was used in large first year classes up to 2013 when a redesign of the first year Chemistry curriculum was undertaken. It has since been refined for use with the new curriculum and is also in use for service teaching in Pharmacy, Dentistry and Engineering. Conduct and management of large scale first year teaching would be difficult to achieve without the innovation.

**Impact and success of the innovation**

A formal external evaluation was conducted by Professor Carmel McNaught, then Director and Professor of Learning Enhancement, Centre for Learning Enhancement and Research (CLEAR), The Chinese University of Hong Kong. Professor McNaught’s evaluation drew attention to three aspects of the innovation:

- **sustainability** – because the IS-ITs project invested a considerable amount of creative energy and time in the development of a technology system to support large-scale collaborative projects with first year students (iCAS), it is well-placed to be sustainable, subject to ongoing staffing resources.
- **dissemination** - the innovation has been actively and very effectively disseminated (within Australia).
- **diffusion** – supportive institutional policy decisions (particularly rewards for adoption and work allocation processes covering teacher allocation, teaching support and IT support staff) are critical for successful diffusion.

Professor McNaught concluded: “This project (is positioned) as a significant contribution to Science education in Australia and elsewhere”. The project team itself evaluated three main aspects of the innovation in depth:

1. learning environment (including task management efficiency and technology sustainability);
2. learning processes;
3. learning outcomes.

In respect of the latter, “the evaluation of the process of implementing the IS-ITs and their impact on learning outcomes has generated substantial data. Analysis of this data is ongoing and outputs in terms of peer-reviewed publications and posters.

Following introduction of the initiative in 2010, the UQ Student Evaluation of Course and Teacher (SECaT) overall relevant course score rose by 0.37 (3.82/5). Course scores higher than four are difficult to achieve in very large cohorts. This rise continues to be sustained at 3.88/5 (2011) and 3.89 (2012).

Academic staff feedback has also been very positive, with colleagues nationally and internationally seeking the related *Handbook of Scenario Resources* for use in their own courses.

In 2012, Queensland University of Technology (QUT) academic staff successfully gained an OLT extension grant to adapt and implement the IS-IT task for their own FY cohort. The UQ innovators were invited to deliver a workshop to support QUT academics in implementing this innovation in their courses.
Western Governors University (WGU), Salt Lake City, Utah, US

Madeleine Green

www.wgu.edu

HEA topics

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Context

Western Governors University (WGU) is a non-profit, fully online university founded in 1997 and supported by 19 US governors, designed by Western Interstate Commission on Higher Education (WICHE) and the National Center for Higher Education Management Systems (NCHEMS). Its mission is to “improve quality and expand access to post-secondary academic opportunity by providing a means for individuals to learn independent of time or place and to earn competency-based degrees and other credentials that are credible to both academic institutions and employers.” It offers programmes in teacher education, information technology, health professions, and business, serving approximately 55,000 students from all 50 states, of whom approximately 12,000 are postgraduate students. The Nursing programme is accredited by the national professional body, as is the Teacher Education programme. The average student age is 37; 72% are classified as underserved and 40% qualify for Pell grants. Overall, 72% receive some form of financial aid. Tuition varies by programme and is less than US $6,000 per year. (It is charged at a flat rate every six months for as many courses that a student wants to take). The University is reputed for being a competency-based institution in the US.

Description of the innovation

WGU is a competency-based, completely online institution. Its aim is to expand access to high-quality, low-cost higher education, especially for working adults. It targets adult students who have some college experience. Students progress through their coursework independently (but with personalised faculty support) at their own pace. Course materials are delivered through technologies that can be accessed through the internet at any time and from any place. Students use textbooks, e-textbooks, web-based tutorials, simulations, and online classes to develop their competencies and prepare for assessments. WGU also offers comprehensive student support services throughout a student’s enrolment.

Curriculum and student support services are delivered through a disaggregated staffing model in which the faculty role is ‘unbundled’. Rather than the traditional role, where faculty develop courses and assessments, teach courses, grade assignments and assessments, and provide tutoring or academic support to students, WGU assigns each of these tasks to different groups of professionals, with some involvement from external industry experts. Full-time course mentors serve as faculty, supporting students as they work through courses and providing supplemental materials as needed.

Curriculum development: In each College, new programmes are developed and existing ones revised under the direction of a programme council, made up of external industry experts and academics. Based on the input of the programme council, WGU staff oversee market research (conducted by vendors) on the demand for programmes from students and employers. The course development team is composed of the college’s National Director (Dean); the Product Manager, who oversees the development of new programmes and courses; at least one Course Mentor (instructor) from each course; instructional designers; part-time faculty who grade assessments, and external subject matter experts. It identifies high-level competencies that cover the general scope of expertise

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64 The Pell Grant programme is a federally funded means tested need-based financial aid programme for low-income students.

65 WGU is organised into four colleges: Teachers College and the Colleges of Nursing, Business, and Health Professions.
in that field. The staff then map the competencies to topics covered in each degree programme and organise the topics into courses and identify specific course-level objectives. (See below under ‘Embedding the innovation’ for a discussion of translation of competency units to credit hours.) Instructional designers identify learning resources for each learning objective, and contract with vendors as necessary to develop new learning resources. Courses are continually revised based on input from the programme councils, analysis of student performance data, and clinical or field experiences.

Assessment: WGU courses involve several types of assessment, including objectively scored exams, performance assessments and clinical or field experiences. All degree programmes also include a capstone course (culminating final year course) to ensure that students have mastered all the high-level competencies. Some objectively scored exams and all performance assessments are developed within WGU. Other assessments are overseen by third parties, either national certification bodies or clinical supervisors at job sites. Students can take WGU assessments in person (at a WGU office or partner testing site) or via online proctoring. WGU uses proctoring vendors that monitor students taking online assessment with a webcam and special software.

Recruitment and intake: Once an application is received, the applicant speaks with an enrolment counsellor. If a counsellor believes that the student is unlikely to succeed at WGU, he or she might recommend that the student explore other options (such as a community college or StraighterLine, an educational company that provides online general education courses). Before acceptance, students take a readiness assessment created by WGU; it assesses academic, mathematical, and writing skills and whether the student has the capacity to learn independently. Students who do not pass cannot proceed in the enrolment process. Ten to 15% either fail the assessment or do not continue to enrol because they lack required skills and knowledge.

Students must complete an online orientation before enrolling in their first course. Orientation includes the development of a graduation plan and a 20-hour study schedule in which the student identifies which 20 hours during their typical week they can devote to coursework.

Learner supports: The two main learner supports throughout the degree programme are student mentors and course mentors. Every student is assigned a student mentor who provides continuous support from enrolment to graduation, helping with course planning and enrolment, answering questions, and tracking student progress. Student mentors contact students within 24 hours of enrolment and schedule weekly meetings with students. After the first year, these meetings occur every other week, if the student is staying on track.

Student mentors work full-time and manage a caseload of about 85 students at a time. They typically have at least a Masters degree and may have industry experience, as well as some classroom teaching experience.

Course mentors provide students with targeted academic support for each course they take. Although their function is similar to that of traditional tutors, the course material is presented through predesigned online resources, so that the course mentor’s primary role is to provide tutoring and additional resources. Each course has a team of course mentors who share the workload, sometimes dividing tasks so that each mentor focuses on different content area or type of learning resource. Students engage course mentors based on their own needs. However, course mentors will reach out to students when the student mentor informs them that a student is struggling. Typically, course mentors work full-time on four to five courses at a time; most have PhDs in the course content area.

WGU’s virtual Career and Professional Development Center provides students with a range of career supports while they are enrolled and after graduation. The Center is staffed by a team of five people. The Center’s services are aimed at unemployed active job seekers as well as employed students looking to progress in their careers.

Distinctive features of the innovation

WGU is distinctive in that it is both online and competency based. By allowing students to progress at their own pace, it can reduce time to complete a degree and is one of the lowest-cost four-year institutions in the US. In spite of being online, it has ‘high-touch’ features that contribute to student success and satisfaction. As a leader in the field of competency-based institutions, it works with many community colleges to help them move to a competency-based curriculum as well as to create opportunities for transfer.
Funding for the innovation

Several philanthropic organisations, large corporations, and the initial 19 state members contributed start-up, one-time funds. The institution is self-sufficient financially from tuition, which has not been raised in eight years. WGU is self-supporting. As is the case for many other US institutions, it receives grants for special initiatives.

Embedding the innovation

As one of the first non-profit universities to offer online, competency-based programmes to students across the country, WGU originally faced hurdles with accreditation and licensure. Of particular concern in obtaining accreditation was how to equate competency units with traditional college credits. This challenge was addressed by developing a formula for translating competency units to credits, based on the level of work and amount of activities in each course. A related challenge arose in obtaining licensure approval for WGU's Teaching and Nursing programmes. Licensure decisions are made by the states, so WGU has had to work with each state to meet its requirements.

Financial aid was also a challenge, since federal aid is tied to credit hours. Compounding this problem is that one of the goals of competency-based education is to allow students the flexibility to move at their own pace through courses and programmes. WGU has addressed this challenge by requiring that all students enrol for a full-time course load at the beginning of each term, even if they take the courses sequentially, thus ensuring that the student can receive federal financial aid. Students work with their student mentors to select a course load that they can accomplish within the six-month time frame. If they finish the courses, they can take others with no additional charge. If they do not, they must demonstrate 'satisfactory academic progress' to be eligible for financial aid.

A final challenge is articulation with other institutions for those students who wish to transfer. This challenge is addressed by the translation of competencies into credit hours.

Impact and success of the innovation

Student engagement: WGU participates in the National Survey of Student Engagement, which in 2014 included some 600 institutions. WGU students scored higher than the national averages on such measures as quality of interactions with faculty, quality of student support services, willingness to attend the same institution again, time spent on studies weekly, and acquisition of job-related skills.

Graduation rates: According to the National Center for Educational Statistics, 27% of WGU first-time full-time students who enrolled in 2006-07, graduated within six years; 41% graduated within eight years. According to the WGU website, for WGU undergraduate students 25 and older - some 86% of its undergraduate students - the graduation rate is 37%. Based on several national surveys this is about 10% higher than the national average for students in this age group. For undergraduate students who began at WGU in recent years, WGU is projecting a graduation rate of 45-50%. The basis of the projected 45-50% rate is stronger retention and good academic standing rates over time. In 2008, WGU's retention from first to second year was 67%; in 2014 it was 79%. In 2008, the percentage of students in good academic standing was 71%, in 2014 that was 93%. Both of these indices are predictive variables and indicate the high probability of higher graduation rates.

Follow up with alumni: The Gallup-Purdue Index examines the long-term success of graduates as they pursue a good job and a better life. 4,000 WGU graduates were included in the 2014 study. Among the findings were: WGU alumni are at least twice as likely as graduates of other institutions to be thriving in all five elements of well-being - purpose, social, financial, community, and physical. They are twice as likely as other graduates to be attached to their alma mater (36% compared to 19%) and more than twice as likely to report that they had a mentor who encouraged them to pursue their goals and dreams (69% compared to 32%).

Employer satisfaction: A 2014 survey of employers conducted by Harris Polling for WGU reveals a high level of satisfaction with WGU graduates. 96% said they were prepared for their jobs; 89% said they were very well or extremely well prepared.

Reference

Community College of Aurora, Colorado, US

Madeleine Green
https://www.ccaurora.edu

HEA topics

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Context

Community College of Aurora (CCA) is a public community college in the city of Aurora, Colorado’s third largest city. It also has a campus in Denver. It has 48 full-time faculty, and 379 part-time faculty. Annual enrollment is about 12,000. 83% of the students are part-time, 60% are non-white.

Community colleges serve a high proportion of poor students and students of colour, who may be more likely to come from low-performing schools, work full- or part-time, have family responsibilities, and could be less likely to succeed in college. CCA saw participation in this project as an opportunity to make progress with the issues of academic success, as specified in its strategic plan.

Description of the innovation

Aurora College used the Equity Scorecard, described below, to address the issue of unequal educational outcomes of different racial and ethnic groups in its student body.

The Equity Scorecard was developed by the Center for Urban Education (CUE) at the University of Southern California. It provides a systematic way to gather data on access, retention, and completion for African-American, Latino and Native American students via a cross-institutional process of inquiry in which faculty and staff become experts on institutional areas of inequity and how policies and practices may be contributing to them. It is in use by more than 50 institutions in the US. The process involves a cycle of action inquiry, including identification of gaps in educational outcomes among these historically under-represented groups, inquiry into instructional and academic support practices, purposeful changes in practices based on the results of systematic inquiry, and evaluation of the effectiveness of changes. The Scorecard reflects an understanding that the success of under-represented students is not shaped simply by policies, but is also profoundly affected by the assumptions and practices of faculty and staff.

In 2013, with a grant from the Bill and Melinda Gates Foundation and the Ford Foundation, and in cooperation with the Western Interstate Commission for Higher Education (WICHE), CUE partnered with three institutions in the Denver area to engage in the Equity Scorecard process and help faculty, staff and administrators create benchmarked completion and equity targets that align with the state’s goals.

The Equity Scorecard process consists of five steps:

1. Laying the groundwork (aligning with existing campus policies and initiatives; identifying key people to lead the work);
2. Defining the problem (identifying equity gaps in educational outcomes);
3. Assessing interventions (inquiring into existing academic and support programmes around the identified gaps);
4. Implementing solutions (making changes based on the results of systemic inquiry and setting goals for improved student success);
5. Evaluating results (evaluating the impact of changes made and creating plans to reach long-term goals).

http://cue.usc.edu/tools/the-equity-scorecard/
CCA was one of three higher education institutions (HEIs) in the Denver area that participated in the project. It began with a workshop where the three HEIs teams examined student outcomes by race and ethnicity in completion, retention and timely credit accumulation, using data tools specifically developed for this purpose. CCA looked at the three-year completion rates for first-time, full-time American Indians, African-Americans and Latino/Hispanic students who entered in 2009 and compared this to the all-student average from the same time period.

This exercise led CCA to focus on Latino and African-American students as their graduation rates were 12.7 percentage points and 5.2 percentage points lower than the overall average pass rate of 34.9%. African-American students had a pass rate of 29.7%, Latino students 22.2% and white students 40.4%. CCA also set a target graduation rate goal to close these gaps. Setting a goal that was even higher than the all student average, CCA decided they would raise African-American and Latino graduation rates to 40.4%, the rate of the highest performing group (white students). Based on the number of students in the 2009 cohort, this goal would have been met if eight additional African-American students and 10 additional Latino students had graduated by 2012.

To identify actions to meet these goals, CCA’s team conducted a review of existing services and programmes connected to advising and a remedial Mathematics course (math 212). They used CUE’s WebScan protocol to review advising webpages and reflect on the language and institutional values communicated to their students. Using CUE’s Syllabus Review Protocol, they also reviewed the Math 121 syllabi to unpack the assumptions it communicated to students. These analyses led to new understandings about the ways in which academic advising and Mathematics might send negative messages to students of colour or be mismatched with their needs.

Findings from the team’s inquiry led to an action plan for interventions in both academic affairs and academic advising, which were also connected to the College’s strategic plan, given specific timelines, and assigned to responsible units. The interventions identified for academic affairs included strategies to help faculty become more culturally responsive, course redesigns, and the addition of student evaluations. In advising, recommendations included new ways of collecting and analysing data, integrating equity issues in various reports and initiatives, hiring a more diverse staff, systematic collection of data for programme improvement, and professional development opportunities that included a focus on equity in reports, goals and assessment.

As a result of the initiative, the Mathematics department also applied the scorecard to individual faculty members, documenting their success rates with different racial/ethnic student groups and creating a professional development programme to enhance the culturally inclusive practices of faculty members. The focus has shifted from ‘fixing underprepared students’ to improving instructional practices that better support the success of all students. In 2015-16, all academic staff at the College will have data on student success in their courses by race/ethnicity and gender, and will set goals for increasing the success in the groups that are experiencing equity gaps.

**Distinctive features of the innovation**

The Equity Scorecard focuses on the roles of faculty and staff in student success. Research shows that most practitioners have the implicit belief that students largely control their success through motivation and hard work. Dominant research models also assume that success factors are largely the same for all students regardless of race/ethnicity. In contrast, the Equity Scorecard is based on research that students of colour experience higher education differently from white students and that practitioners need to be aware of this as well as the impact of their own practices on student learning and success. Thus, Equity Scorecard participants become researchers of their own practice: they seek to understand the embedded assumptions and impact of their approach as well as experiment to find strategies that support equitable outcomes for the different student groups they serve.

**Drivers for the innovation**

The Equity Scorecard seeks to address a challenge in US higher education of achieving equitable educational outcomes for historically marginalised populations. Like other institutions, Aurora sought to improve its success rate, and college completion is also Colorado State’s higher education policy goal. CUE and WICHE consulted with state higher education leaders to identify institutions with which to work.

**Funding for the innovation**

Foundation funding was available to CCA for one year (2013-14). CCA now supports all of the work being done subsequent to its official relationship with CUE in the early stages. The majority of the work underway is a result of a shift in workload priorities for existing faculty/staff or a redefinition of job descriptions for newly open staffing
positions to include equity work. As such, CCA has not needed to provide additional funding to continue its equity work; but it has had to rethink budget priorities and allocations.

**Embedding the innovation**

The greatest barrier was a pervasive lack of awareness that equity was really an issue along with a healthy scepticism that these issues were related to race. Built into the scorecard are the tools that helped CCA faculty and staff overcome these barriers by discovering their own inequitable outcomes and practices and then developing practices using an equity lens.

An example of overcoming barriers is the mentoring provided to individual Mathematics staff. There was great scepticism by individuals that their work might exhibit evidence of bias based on race/ethnicity. The primary tool for overcoming this barrier was having academic staff viewing their individual data relative to the overall average and being held to the expectation that they needed to address the inequities they discovered. Appropriate help and mentoring was provided. Part of the mentoring process was the analysis of classroom practices that provide greater benefits to some groups of students over others.

Implementation is now embedded for those who have gone through the Scorecard process. Teaching staff who were once sceptical of the process have now all agreed that it should be followed by other faculty, and they would like to lead other faculty through it.

The inclusion of equity work in the strategic plans for the academic affairs and student affairs divisions, and in the overall College’s strategic plan is evidence that this work is to be embedded throughout CCA. In addition to all full-time staff being presented with their data in the Fall semester, several departments will go through the Equity Scorecard process next year. The English and Psychology departments are already using data broken down by race/ethnicity based on the work of the Mathematics department. The English department has hired an academic coach that works exclusively with students who tested at the lowest level of English/reading where great inequities exist by race/ethnicity. He is currently training developmental English faculty on equity. The College has an equity, diversity and inclusion council that spearheads all of its equity initiatives. Another important change is hiring practices. There has been bias training for search committee members, better recruitment of non-white candidates, systems set up to track demographics of candidates, and there have been at least two searches that have been reopened because the pool of candidates was not considered diverse. Approximately half of all new hires in the past year have been non-white.

**Impact and success of the innovation**

Although there has been no formal evaluation of the programme, success of the initiative has been monitored. The key metric of success is the academic success, including retention and attainment, of the two key groups (Latino and African-American students) identified as having significant attainment gaps. In Mathematics 202 (College Algebra), from the academic year 2013-14 to 2014-15, success rates improved from 66.3% to 73.9% for African-Americans and from 65.6% to 74.9% for Latino students. Other groups made gains as well, so that the overall success rate rose from 68.5% to 76.5%. Achievement gaps were the greatest at the lower level courses in Developmental Mathematics (Introductory Algebra). African-American students are disproportionately represented in those courses. The gains were the greatest in Introductory Algebra, which was redesigned between Spring and Fall 2014. The improvements in the redesigned course were from a 40% success rate to 53.6% for African-American students; 48.1% to 70.3% for Hispanics, and from 28.6% to 72.7% for Native Americans.

Another metric is the success rates of faculty with under-represented students. Nineteen faculty were part of the programme last year, of whom 11 had below average success rates. Nine of those 11 showed significant improvements.
San Francisco State University and City College of San Francisco, California, US

Madeleine Green

http://www.sfsu.edu/
http://www.ccsf.edu

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Context

San Francisco State University (SFSU) is a public institution that is part of the California State University (CSU) system. It offers Bachelor’s, Masters and Doctoral degree programmes. It enrolls approximately 26,000 undergraduates and 3,600 postgraduate students. City College of San Francisco (CCSF) is a public community college enrolling approximately 26,000 full-time-equivalent students.

Description of the innovation

Metro was founded in 2007 as a partnership between San Francisco State and CCSF and started pilot student cohorts in 2008. The Metro Academies (Metro) programme, redesigns the first two years of the College experience to sharply improve College completion and academic success. Metro’s recruitment focuses on high schools and community-based organisations that serve students who are low-income, under-represented and/or first-generation college-goers. Approximately seven out of 10 Metro students are from under-represented groups, and 80 to 90% enter College needing additional support.

Metro is a solution to the urgent need to reverse very low rates of College graduation and, at the community college level, the problems when transferring to a university, which disproportionately affect young people who are under-represented by ethnicity, low-income and/or first-generation college-goers. Studies show that nearly 40% of under-represented students in the CSU system drop out before their junior (third) year, and more than 60% of under-represented students drop out of Californian community colleges before they graduate or transfer. California is currently 49th out of 50 states in the size of the Bachelors’ graduation gap between under-represented students and their white and Asian peers.

Each academy serves as a ‘school within a school’ for up to 140 students - 70 freshmen and 70 continuing sophomores. Each has a broad career or topic theme, such as Metro Academy of Health or Metro Academy of Science. The academy’s theme engages students in their field of interest at the start of their college careers - far earlier than standard practice, where students wait until their junior (third) year to focus on their major.

Metro has three main programme elements:

1. a guided pathway of general education courses, in which students take two general education classes together each semester, cohort-style, over four semesters;
2. student services based in the Metro classroom, including academic counselling, financial aid advising, and tutoring; and
3. 45 hours of faculty professional development for the staff involved.

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67 http://www.metroacademies.org
68 In the US system, the four years of an undergraduate are known as freshman, sophomore, junior and senior.
Each Metro’s Academy’s course pathway meets requirements for all 289 majors in the CSU system, setting students on a strong path to completion. Each pathway pairs a course focused on that Metro’s theme - such as community health - with a course focused on one of the ‘golden four’ academic skills - writing, critical thinking, oral communication or quantitative reasoning. The courses are designed to progressively build academic skills through repeated and increasingly challenging practice. Each pair of courses shares a social justice theme designed to help students think critically about real-world issues in their field of interest. Metro Health students, for example, learn to build and interpret bar graphs using real public health databases with information about their own neighbourhoods.

In 2008, SFSU and CCSF each started Metro Academies of Health; they added Child Development in 2010. As of 2015, SFSU has expanded to 10 Metro academies, with 12 academies slated for 2017. When fully established, these will serve 50% of low-income freshmen and 25% of all first-time full-time freshmen. Academies represent a range of disciplines, including Business, Child and Adolescent Development (CAD), Education, Engineering, Ethnic Studies, Health, Liberal and Creative Arts, and Science. City College is expanding from its current two academies to six academies by 2017. Academies are hosted not by academic departments, but by the larger units called ‘colleges’ at San Francisco State (e.g. College of Science and Engineering), and ‘schools’ at City College (e.g. School of Health).

**Distinctive features of the innovation**

It is a well-developed and successful partnership between a community college and a four-year institution, with a demonstrated track record. Partnerships between two and four-year institutions are often very challenging. Its success has been recognised by the Association of Public and Land-grant Universities (APLU), which in 2013 awarded Metro Academies one of three top national awards for college completion. In 2014, the programme was awarded $3m from the state of California to further develop the Metro Academies.

**Funding for the innovation**

Metro was initially funded with a seed grant from the US Department of Education’s (US DOE) Fund for Innovation in Postsecondary Education (FIPSE); it received a second FIPSE grant for expansion. The James Irvine Foundation provided early funding for Metro’s start-up, and the Mimi and Peter Haas Fund supported Metro’s child development academies. In addition to the previously noted California state innovation award, Metro competed successfully for ongoing support from the CSU system’s Student Success Initiative, as well as a grant from the US DOE’s Strengthening Institutions Program (SIP), which helps eligible higher education institutions expand their capacity to serve low-income students. The Marcled Foundation is providing start-up support for City College’s Metro expansion. The main programme expenses are Metro courses, which are now supported by general funds.

**Barriers to implementation**

From many lessons learned, three stand out. First, programme leaders learned that while they sought to keep the programmes very similar in the community college and university settings, Metro’s approach needed to be adapted to the specific conditions at each institution. For example, during the pilot year, the institutions learned that their course pathways could not be identical. They also found that, because resources are thinner at community colleges than at universities, some programme elements, such as information technology infrastructure, take more time to establish in the community college. Second, they initially designed Metro as a pathway around a department-specific major, but quickly found that their young students sometimes changed majors, which meant leaving Metro. In 2011, they solved this by creating a universal general education pathway that works for all CSU majors. This would allow students to change majors without having to leave the programme. Third, it was a challenge to find the best way to schedule time for Metro faculty development. Initially, they scheduled meetings over a two-year period, but after experimenting, they learned that it worked best to compress training into an annual three-day Metro Institute, supplemented by follow-up meetings.

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69 In California, ‘articulation’ agreements between community colleges and the four-year institutions (CSU system and the University of California system), ensure that agreed-upon community college courses will transfer. Students transitioning to four-year institutions must apply.
Embedding the innovation

As noted, Metro’s main programme expense is its courses, which are already supported by general funds. With support from institutional leaders, Metro’s course pathways have been largely institutionalised. SFSU has been able to deeply institutionalise Metro as part of the University’s ‘standard operating procedure’ for serving a significant portion of disadvantaged students, with City College set on a similar path. At SFSU, memoranda of understanding are in place to set clear expectations for each academy and host college; targeted recruitment is now routine; there are automated processes for enrolling students in Metro courses; and the University has provided dedicated space for tutoring and student services.

As noted above, Metro is currently expanding from two pilot academies in 2008 of 140 students each in the two institutions, to 18 academies by 2017. Metro-prepared instructors have intensive development in high-impact pedagogical practices as part of their 45 hours of professional development. Qualitative research by external evaluators has found that Metro instructors are far more likely than non-Metro faculty to use engaging teaching methods; form strong interpersonal relationships with students; set clear expectations; and help students see that what they are learning matters in their own lives and in their communities. Because Metro’s faculty teach both Metro and non-Metro courses, their enhanced teaching skills also reach many students beyond Metro.

Impact and success of the innovation

The primary way Metro is evaluated is by examining student outcomes: students’ persistence from semester to semester, their transfer-preparedness rates at CCSF, and graduation rates at SFSU. Programme leaders worked with their respective Institutional Research departments to set up methods for comparing Metro students to similar non-Metro students, using institutional data.

At CCSF, entering freshmen have a variety of goals, such as career certificates; and not all freshmen have transfer to a university as a goal. Therefore, they compare Metro students to a group of similar students matched on seven variables: placement level, income, race/ethnicity, units completed, English as a Second Language (ESL) status, subject enrolment, and ‘sought counselling in their first semester’ (a proxy for high motivation).

At CCSF, 63% of the students from Metro Health completed their associate degrees in three years, compared to 13% of the comparison group. After two years, 29% were transfer-prepared, versus 10% of the comparison group. After three years, 54% were transfer prepared, versus 21% of the comparison group. Additionally, 80% of Metro students complete or persist after three years, versus 45% of the comparison group.

At SFSU, entering freshmen have one primary goal: graduation. Prior to 2015, they compared Metro students’ persistence and graduation rates to those of all first-time full-time freshmen. Going forward, they will be able to conduct matched comparisons of Metro to specific non-Metro students.

At SFSU, Metro students’ persistence into their sophomore, junior and senior years is higher than all non-Metro first-time, full-time students at SFSU (87% of Metro students persisted into their third semester, compared to 82% of the comparison group; 87% persisted into the fifth semester, compared to 69% of the comparison group; and 76% of Metro students compared to 64% of the comparison group persisted into the seventh semester).

In addition, a preliminary cost study found that by investing an additional $740 per student per year for two years, CCSF’s Metro reduces overall costs per community college completer by $22,714. For an additional investment of $470 per student per year for two years, SF State’s Metro reduces overall costs per graduate by $17,879. These cost reductions come from reductions in attrition; from students staying on path and not ‘wandering’ or taking courses that do not count for graduation; and from taking a shorter time to attain the degree. Throughout the CSU system, the most common time to graduation is now six years. In contrast, nearly two-thirds of Metro students graduate in five years. Metro students also save on average one year of tuition and earn an extra year of wages. In the community college, Metro students graduate with an associate’s degree and transfer within three years, shaving off two years compared to the average of five years to graduation for similar non-Metro students.
Uniminuto University, Bogota, Colombia

Jamil Salmi

http://www.uniminuto.edu/

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Context

With a national enrolment rate of around 30%, Colombia has 32 public universities and 48 private universities, as well as a large number of technical institutes. The private sector, which accounts for about 45% of total university enrolment, has traditionally been segmented into two main groups: a small number of elite universities, religious and secular, catering to the best students coming out of private high schools; and a large number of low quality institutions catering to the lower end of the market.

Due to the low quality of public secondary education in Colombia, a large proportion of incoming university students are academically weak and lack the drive to study, especially low-income youths who did not get the opportunity of attending a better-quality private high school. As a result, dropout rates are quite high in Colombian universities, around 40% on average for each new cohort of students. The OECD and the World Bank identified this issue as one of the most serious challenges faced by the Colombian higher education system.

In 1990, a Colombian priest known for his community development actions, Rafael García Herreros, created a new open access private university, Uniminuto, with the explicit purpose of offering good-quality education to young people from low-income families living in disadvantaged areas. After setting up the main campus in the remote outskirts of Bogota, the capital city, he went on to establish branches in a number of marginalised urban and rural zones. From the beginning, Uniminuto’s curriculum emphasises professional competencies, citizenship values, social innovation and sustainable development.

Uniminuto has experienced a spectacular growth, evolving into a multi-campus university system of 12 branches enrolling 93,000 students overall in 2014. About 40,000 are online students. Two-thirds of the students are female; 54% belong to the lowest two income quintiles. Uniminuto’s financial model relies essentially on student fees (at a low level) for operational expenditures and loans or donations for capital investment. The University spends about 28% of its revenues on student aid (scholarships, loans and tuition discounts).

Uniminuto has received praise from the Colombian government and the OECD for its inclusive expansion policy in marginal areas of the country. Uniminuto has also won two prestigious international awards for outstanding inclusive education institutions, one given by the G20 and the second one by the Financial Times.

Description of the innovation

Uniminuto has put in place a special programme of academic support dedicated to at-risk students. Initially, the programme specifically targeted first-year students because of their higher propensity for dropping out. However, in recent years, the first-year academic support programme evolved into a more comprehensive approach called the Integrated Focus Model (IFM – Modelo de Atención Integral al Estudiante in Spanish), which operates during the entire course of studies.

It all started with the First-Semester Initiative, which was launched in 2006 on the main campus in Bogota. The following year, it became the First-Year initiative, with a First Year Vice-Dean assigned to oversee the programme. All the campuses then designated a First Year Director responsible for coordinating the various academic support activities, from the identification of at-risk students to the programming of appropriate interventions. The First-Year Director worked closely with the professors, who were directly involved in monitoring and recognising at-risk students. Skipped classes and sudden drops in grades were among the most telling signs of academic difficulty that professors have learned to recognise. At-risk students received support in the form of tutoring provided by dedicated tutors chosen from among other students in the same academic department.

In 2012, Uniminuto decided to transform the first year programme into a comprehensive academic support model that offers a wider range of interventions to accompany at-risk students and students in difficulty and follow them throughout the course of their studies, from the time they apply until after graduation. The Integrated Focus Model involves a sequence of support activities, careful measurement, early warning systems, and impact evaluation. At-risk students have access to five categories of support services:

1. academic counselling;
2. financial support for temporary difficulties;
3. psychological counselling;
4. a life project course, and
5. remedial courses.

- **Academic counselling** entails seven modalities: 1) monitoring academic results before the first mid-term exam; 2) monitoring of unusual absence and low grades; 3) tutoring and mentorship; 4) academic strengthening workshops; 5) counselling on course selection and attendance and career counselling more generally; 6) counselling in case of conflict with professors; and 7) individualised study contracts where students commit to applying themselves to their studies.

- **Financial support** can take three forms: 1) help with getting a student loan from ICETEX, the country’s national student loan agency (the first ever such institution in the world, founded in 1951); 2) loans from Uniminuto’s own funding cooperative; and 3) scholarships from Uniminuto for students experiencing very difficult economic situations.

- **Psychological support** is offered in four ways: 1) psychological counselling; 2) counselling for students with special needs; 3) workshops with the parents of first year students to talk about student autonomy and financing options; and 4) meetings with parents at their initiative.

- **Life project course.** All students are required to take the life project course during their first year. This course is designed to help them formulate a clear vision of their professional and personal goals, and identify, on that basis, the educational options that best meet their needs.

- **Remedial courses.** Over the years, Uniminuto observed that the main areas of weakness of incoming students were their level of Mathematics and their ability to communicate orally and in writing. Therefore, it has put in place a series of remedial courses to overcome these deficiencies among at-risk students. These courses are available on a voluntary basis. In addition, students that find themselves struggling in key courses in their undergraduate major can get relevant remedial help.

The Deputy Vice-Chancellor in charge of ‘academic welfare’ oversees the implementation of the Integrated Focus Model. Throughout the Uniminuto university system, each faculty or school has a dedicated person responsible for coordinating the relevant interventions under the Model, collaborating closely with the central units responsible for organising the interventions. The Integrated Focus Model is carefully adjusted to the specific needs and capacities of each campus. In 2014, Uniminuto started to implement the integrated focus model to its Virtual Education Department, relying mainly on electronic messages, communications through the social media and online counselling.

**Distinctive features of the innovation**

Equity is a serious challenge in the Colombian higher education system. The net enrolment rate for students from the first income quintile is less than 10%, compared with a participation rate of 53% for those pertaining to the fifth quintile. Uniminuto’s inclusive expansion strategy has been so successful - as mentioned earlier, 54% of its students come from the lowest two quintiles - that the government of Colombia decided to emulate it by providing incentives to public universities to also set up branch campuses in remote areas of the country. But getting students to enrol is only the first part of the equation. It is also important to keep them in the institution and
ensure that they complete their studies with appropriate standards. This is why Uniminuto’s Integrated Focus Model is essential to attain higher levels of retention, which is an equally important part of the equity equation.

Drivers for the innovation

Uniminuto is unique in the Colombian higher education landscape in seeking to provide good quality programmes at low prices. While it has succeeded in offering educational opportunities to a large number of low-income students, positioning itself as the “most public among Colombia’s private universities”, it has battled with the challenge of high dropout rates and low levels of degree completion. The students who enter Uniminuto share the following characteristics: low academic level; weak basic competencies; financial difficulties; and psycho-social vulnerability. The Integrated Focus Model attempts to address these in a comprehensive manner.

Funding for the innovation

Even though Uniminuto received a loan from the International Finance Corporation (IFC) to help with the construction of several new campuses, all the funding for the Integrated Focus Model has come from the University’s operating budget.

Barriers to implementation

Over the years, Uniminuto has faced several challenges in trying to implement the First Year programme and then the Integrated Focus Model. Initially, it was difficult to convince each academic unit about the importance of the support programme and to enlist their full participation. It also proved complicated to ensure that all the campuses would be able to offer the same level of individualised support to all at-risk students.

At first, Uniminuto did not have any system in place to record and monitor the tutoring sessions. Professors were not all punctual in giving feedback, which made it difficult to identify at-risk students in an opportune manner. Another challenge was that the academic support teams worked with good intentions but without necessarily having a good knowledge of the available proven interventions to effectively help at-risk students overcome their academic vulnerability.

After that came the realisation that being attentive to the special academic needs of at-risk students was important but not sufficient. Uniminuto staff observed that, because of the academic deficit of many incoming students, it would usually take longer than two semesters to bring those students who were struggling with the academic demands of their studies back at the required level. The students themselves complained of feeling ‘abandoned’ after the first year. This is why Uniminuto decided to make the academic support programme more comprehensive in scope and to extend the duration of interventions. It also proved necessary to articulate admission policies and academic support more closely to provide a strong academic and vocational orientation programme to all applicants.

Embedding the innovation

The programme started in one faculty in the main campus in Bogota, and was progressively extended to the other campuses. In 2012 it became a university-wide programme.

The Integrated Focus Model has become a university-wide programme that operates throughout the Uniminuto system as a core element of the students’ educational experience. The number of students getting support went up from 7,800 during the first semester of academic year 2010-11 to close to 10,000 students during each semester in 2014-15.

Impact and success of the innovation

Initially, Uniminuto concentrated its efforts on the launch and implementation of the academic support initiatives, without putting a lot of attention to their evaluation. But in recent years, the University has tried to observe the results of the interventions in a more methodical way. It now has an early warning system, built into the University’s overall management information system, to detect at-risk students. It also systematically compares the academic outcomes of students benefiting from the interventions with those of students not included in the programme, looking at their grades during the study years and their results in the exit examination that Uniminuto administers as a proxy for evaluating added value. The main purpose of all these evaluation efforts is to identify which interventions or combinations of interventions are most effective, looking at their impact on dropout and degree completion, and monitoring progress across the various Uniminuto campuses. The permanent evaluation system also seeks to detect new support mechanisms that could work effectively within the University.
In the course of observing at-risk students and working with them, Uniminuto specialists involved in the implementation of the Integrated Focus Model have found that the education level of the mother of incoming students is one of the best predictors of academic success/difficulty.

A regular student survey is also used to assess how the principal beneficiaries perceive the Integral Focus Model. The most recent data indicate that 75% of the students are aware of the existence of the programme, and 79% of the beneficiaries think that the programme is effective and relevant. Uniminuto leadership would like to raise these figures to at least 85%.

The main indicators used to monitor the Integrated Focus Model are the absenteeism, dropout and completion rates. Uniminuto was able to document clear but slow progress as a result of the Integrated Focus Model. At the end of the first semester of academic year 2009-10, the dropout rate was 31.1%; for the first semester of academic year 2014-15, it had gone down to 11.1%. In 2010, Uniminuto's dropout was 8.1% above the national average; by 2014, the gap had gone down to 3.8%. 
Macquarie University, Sydney, Australia

Dennis Murray

www.mq.edu.au

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Context

This case study focuses on Macquarie University’s involvement in a national project investigating how to unite remote and face-to-face learners in real-time collaborative learning experiences. Macquarie University (MQ) is a medium-size university within the Sydney metropolitan area. It has two campuses (in North Ryde and in the Sydney central business district (CBD)) with 38,747 students, 11,377 (29%) of whom are international students.

Macquarie University has a tradition of embracing technological innovation in its learning and teaching. While most students still enrol to study on a centralised campus, their studies are supported through a range of online resources – lecture recordings, notes, readings, and so on – that make coming to campus more optional.

Given the changing patterns of student engagement in higher education, Macquarie is more actively considering how technology can facilitate collaborative interactions between staff and students who are increasingly distributed and dislocated.

The broad context within Macquarie is conducive to further take up of the innovation. In March 2015, the Deputy Vice-Chancellor (Academic), Professor John Simons (a Fellow of the UK Higher Education Academy) released a ‘Green Paper’ designed to inform the development of the Learning and Teaching Framework (‘White Paper’).

By 2016, the University proposes to have “an integrated plan for the development of spaces and technologies which prioritises collaboration and connection – design for a digital age”.

The other partner universities in the project, The University of Melbourne and Charles Sturt University, both have strong track records of technology-based learning.

Description of the innovation

The innovation investigates how rich-media technologies – in particular video-conferencing, web-conferencing and 3D virtual worlds – can be best used to support effective collaboration to engage remote and face-to-face students in real-time learning. The outcomes of this investigation have been disseminated widely in Australia and are being used in Macquarie and many other institutions, not just those illustrated by this case study. There is growing international interest as well, with the lead researcher presenting two keynotes in Canada on Blended Synchronous Learning later in 2015.

CONCEPTUALISATION

The idea behind the innovation is the belief that blended synchronous learning, involving live classrooms that include students in remote locations interacting in real time, will be part of the future armoury of higher education institutions and teachers.

There is a difference between blended learning which involves learning at least in part through delivery of content and instruction via digital and online media with some element of student control over time, place, path, or pace and blended synchronous learning which involves learning facilitated by the use of various forms of televisual,
digital, and online tools such that students learn from instructors, colleagues, or peers in real time, but not in person (i.e. students are in locations different from the live class in which they participate)\(^7\).

**PROGRAMME ELEMENTS**

The innovation recognises that the relevant ICT is available to conduct blended synchronous learning classes but also that knowledge about how to best use the technology effectively is generally not well understood by many university teachers. The conceptual challenge, therefore, was to understand student and teacher behaviour to frame tools to assist teachers to take up and use ICT in blended synchronous situations.

A scoping study was used to determine the types of rich-media synchronous technologies that Australian and New Zealand tertiary educators had been using and why they were using them. 39.2\% indicated that they had used rich-media real-time collaboration tools to simultaneously teach remote and face-to-face students. Based on this, it appears that blended synchronous learning has been a relatively under-recognised phenomenon in higher education. Teachers attempting to teach in blended synchronous learning mode may not have had access to the support, guidance and resources that they would like and need.

The scoping study was also used to identify case study partners\(^7\). Ultimately, seven case studies of blended synchronous learning were conducted in Macquarie and in the case study partner institutions. These encompassed a wide variety of technologies, discipline areas and learning designs, including:

- web conferencing to develop shared understanding using a collaborative evaluation task;
- room-based video conferencing to develop understanding of healthcare quality improvement approaches using an interactive lecture and collaborative evaluation task;
- web conferencing to develop microscopic tissue analysis and interpretation skills using group questioning tasks;
- web conferencing for participation in statistics tutorials using collaborative problem solving;
- virtual worlds to facilitate Chinese language learning using a paired role-play;
- web conferencing to enable presence in sexology using interactive lecture discussions; and
- virtual worlds for teacher education using collaborative evaluation and design tasks.

A framework was developed for tool selection and use, together with a collection of exemplar learning designs. The seven case-study implementations were monitored and evaluated so as to trial and refine the technology capabilities framework and exemplar designs while simultaneously generating practical guidelines for teaching and support staff.

*A Blended Synchronous Learning Handbook* is the main output of the project. It includes a *Blended Synchronous Learning Design Framework* that offers pedagogical, technological and logistical recommendations for teachers attempting to design and implement blended synchronous learning lessons (see Table 3).

\(^7\) The project focuses on blended synchronous learning (with part of the class physically present) rather than online synchronous learning (where all students are remote). However, many of the findings of the project might apply equally well to both scenarios.

\(^7\) The project had a national focus, involving Macquarie University (lead institution), The University of Melbourne and Charles Sturt University. Details of the contributions of the partners are given in the introduction to the paper: *Patterns and principles for blended synchronous learning: Engaging remote and face-to-face learners in rich-media real-time collaborative activities*. Available from: [http://ascilite.org.au/ajet/submission/index.php/AJET/article/view/1697](http://ascilite.org.au/ajet/submission/index.php/AJET/article/view/1697).
Table 3. The Blended Synchronous Learning Design Framework

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<td>Clearly define learning outcomes</td>
<td>Match technologies to lesson requirements</td>
<td>Be highly organised in advance</td>
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<td>Design for active learning</td>
<td>Setup and test the technology in advance</td>
<td>Solicit the right institutional support</td>
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<td>Determine whether to group remote with face-to-face students</td>
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<td>Prepare students</td>
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<td>Utilise general design principles.</td>
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<td>Prepare self</td>
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<td>Establish a learning community</td>
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<td>Encourage regular student contribution</td>
<td>Know how to use (and troubleshoot) the technologies</td>
<td>Start lessons 10 mins early for technology testing</td>
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<tr>
<td></td>
<td>Distribute attention between remote and face-to-face students</td>
<td>Appropriately utilise audio-visual modalities</td>
<td>Apply tactics to work with text chat contributions</td>
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<tr>
<td></td>
<td>Identify the focus of learning and discussion</td>
<td>Ensure students have correct permissions</td>
<td>Login to a second computer (to see student view)</td>
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<tr>
<td></td>
<td>Avoid duplication of explanations</td>
<td>Advise students how to use the technology</td>
<td>Seek teaching assistance where possible and desirable</td>
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<tr>
<td></td>
<td>Circulate among groups</td>
<td>Use tablet devices to facilitate visual input if required</td>
<td></td>
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<tr>
<td></td>
<td>Draw upon existing pedagogical knowledge</td>
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<td></td>
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<tr>
<td></td>
<td>Be flexible, adaptive and composed</td>
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<tr>
<th>Product (Outcomes)</th>
<th>More active learning (remote and face-to-face)</th>
<th>Enhanced sense of community (through co-presence)</th>
<th>More flexible access to learning</th>
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LEADS TO

Increased student satisfaction

Rather than being prescriptive, the Framework aims to summarise the practices from the case studies that make a positive contribution to student experience. Every context is unique of course and not all items are relevant or appropriate for specific educational circumstances. However, this distillation in the Framework directly supports educators to implement blended synchronous learning in their classes.

Detailed explanations of each of the elements in the Framework are given in the Handbook73.

The Handbook (Chapter 4) also includes a Rich-Media Synchronous Technology Capabilities Framework to support the selection of technologies for different types of learning activities.

In summary the innovation outputs were:

- The blended synchronous learning scoping study providing an overview of how rich-media synchronous technologies were being used by tertiary educators in Australia and New Zealand;
- the formation of a Blended Synchronous learning Collaborator Network, involving more than 600 educators (now more than 1,000) from across Australia and around the world, many of whom participated in the Blended Synchronous Learning Webinars74.

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73 https://blendsync.org/handbook
74 http://blendsync.org

85
> a set of *case studies* and a *cross-case evaluation* including the design of the collaborative learning activities, the technology and integration, as well as the evaluation approach, findings, and lessons learnt;

> the *Blended Synchronous Learning Handbook*, which includes the Blended Synchronous Learning Design Framework and the Rich-Media Synchronous Technology Capabilities Framework;

> a series of *Blended Synchronous Learning workshops* (see impact and success section below) in capital cities across Australia;

> the *Blended Synchronous Learning project website* that provides an overview of the case studies (including video summaries), links to publications and resources, a portal for the Collaborator Network, and an enduring record of the project.

**Distinctive features of the innovation**

The distinctive features of this innovation are:

1. the innovation is based on a view about what future learning and teaching will be – perfect access to learning regardless of location;
2. it does not impose a technology solution on teaching from above, but rather uses a scholarly understanding of what modern teaching practice and potential are in order to produce a useable framework backed up with practical, experiential examples of blended synchronous teaching and learning, that can lead to changes in teaching behaviours (see also impact and success section below).

**Drivers for the innovation**

The innovation was borne out of ‘the utopian vision’ that in the future, with advances in ICT, all students should have equitable access to face-to-face learning experiences no matter where they are located.

The project leader, Dr Matt Bower, and his Macquarie colleagues were already exploring and piloting a ‘blended reality’ learning environment. A conference paper presented by Dr Bower in 2010 on ‘blended reality’ attracted the interest of other Australian colleagues, Professor Gregor Kennedy from The University of Melbourne, and Professor Barney Dalgarno and Mark Lee from Charles Sturt University. This led to the joint approach to the Office of Learning and Teaching (OLT) for funding a project to comprehensively explore the initiative, at the Australian tertiary education system level. The work ended with a report in 2014.

**Barriers to implementation**

Blended synchronous learning places high demands on teachers in terms of cognitive load. Technology performance issues and preserving the quality of the face-to-face experience are also issues.

Findings from the study indicate that for blended synchronous learning to be successful, institutions need to provide appropriate technical support, teaching assistance, professional development and pre-equipped learning and teaching spaces. Additionally, adequate workload allowance needs to be provided to teachers teaching in blended synchronous mode.

The teachers and the quality of their pedagogical practices are the main determinants of the student experience. Teachers’ willingness to upgrade their skills may also be a barrier. To that extent, teacher practice, development and support should be the primary focus of any blended synchronous learning initiatives.

There may also be some discipline barriers. The requirements of the technology and use of blended synchronous learning may vary for different disciplines. Successful implementation within some hands on disciplines needs special attention. For instance, in one case study (study three) the teacher used a tablet PC stylus with a pen so that she could write statistical notations on her slides.

The innovation is flexible enough to allow for multiple levels of engagement. If a university were to adopt blended synchronous learning as a core strategic direction, the investment costs would be high and consideration would need to be given to potential value and return. At another level, individual teachers may independently set up blended synchronous learning environments using a web-cam, audio-conferencing system and a synchronous

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75 [http://blendsync.org](http://blendsync.org)
collaboration technology such as a web-conferencing platform. At another level, individual teachers may use blended synchronous learning ‘on a bootstrap’ by linking into audio-conferencing systems.

Successful implementation, particularly across a whole faculty/school or more broadly across a whole institution, requires significant high level vision and leadership.

**Embedding the innovation**

Within Macquarie the innovation is at school level. The innovation began with teaching and research staff in the School of Education and has not yet spread to other schools in Macquarie.

The School of Education plans to introduce BSL in the Master of Education programme. Funds are being sourced to set up a laboratory to implement the initiative.

The project has attracted international interest and is now part of an international movement to introduce a blended synchronous learning approach to learning and teaching. Victoria University in Canada, for example, in 2011, made a strategic decision to adopt blended synchronous learning extensively and is making commensurate investment in infrastructure and teacher development.

**Impact and success of the innovation**

Formative evaluations were conducted throughout the project by an external reference panel, practitioner network and by case study partners. Feedback provided in the course of a series of BSL workshops in capital cities across Australia indicated that 77% of the workshops’ 268 participants planned to use the innovation.

A cross-case study analysis provided an overarching view of student and teacher perceptions of blended synchronous learning. Many remote students indicated that blended synchronous learning offered them fast access to learning support and increased their sense of connectedness. Many face-to-face students appreciated being exposed to a broader range of perspectives. Both remote and face-to-face students valued the flexibility that blended synchronous learning afforded, and in many cases felt that it led to an enhanced sense of community.

Lesson evaluations across the seven case studies also indicated that 74% of face-to-face and 77% of remote students desired blended synchronous learning to be used in other subjects that they studied.

Technology reliability and performance is an issue for some remote and face-to-face students. Some face-to-face students commented that the involvement of remote students might at times slow down the lesson or interfere with face-to-face students’ interaction opportunities.

In summary, the evaluations demonstrated that blended synchronous learning offers numerous advantages to institutions. It can provide more flexible access to programmes, increase the amount of in-class participation, enhance students’ sense of connectedness, and potentially be more financially efficient. However, its implementation faces particular challenges, as shown above.

A presentation on the innovation won the 2013 best paper award at the ASCILITE Conference (Australasian professional association in the educational use of technologies in tertiary education)76.

In 2014 the *Blended Synchronous Learning Handbook* won the Downes Prize reflecting international interest in the innovation on the part of *On Line Daily* readers (OLDaily is a prominent Canadian e-newsletter)77.

Downes made the following critical evaluation:

> While something might catch the popular interest and spike briefly, it is the deep and insightful text with lasting import that attracts enough attention over the course of the year.78

Finally, the *Handbook* was highlighted in the US New Media Consortium (NMC) 2015 *Horizon Report – Higher Education Edition*79.

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77 [http://www.downes.ca/post/63229](http://www.downes.ca/post/63229)
78 [http://www.downes.ca/post/63229](http://www.downes.ca/post/63229)
Section E. Improving student retention and attainment

University of Bío-Bío, Concepción, Chile

Jamil Salmi
http://www.ubiobio.cl/w/

HEA topics

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<tr>
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<td>Improving student retention and attainment</td>
<td>Yes</td>
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</tbody>
</table>

Context

Chile has one of the most advanced higher education systems in Latin America. Coverage is high, with a participation rate of almost 50%, and its top two universities are among the few Latin American universities appearing in the Shanghai Academic Ranking of World Universities. Three-quarters of the students are enrolled in private institutions (universities and technical institutes). Until recently, it was the only country in the region with substantial tuition fees in the public universities. Access and retention of students from the lowest income groups remains a serious issue. At the national level, the overall dropout rate is close to 54% in both public and private universities; only 22% of the students graduate on time.

The University of Bío-Bío, located in Concepción (Chile’s second largest city), is one of the country’s 16 public universities. It has a student population of about 13,000 distributed between its two campuses; 6% are graduate students. It is accredited by the Chilean National Accreditation Commission and has positioned itself as a regional university fully engaged with the local economy and community. The national ranking published by the Que Pasa magazine puts the University of Bío-Bío in eighth place.

Since 2007, the University of Bío-Bío has initiated and implemented several projects to improve the quality and relevance of its programmes through curriculum reform and to increase retention and on-time completion through a First Year Induction and Integration programme.

For the past 15 years, the Chilean government has run a comprehensive Higher Education Quality and Relevance Improvement Programme (MECESUP in Spanish), with financial support from the World Bank. The project coordinator identified the University of Bío-Bío as one of the most innovative public universities in Chile today.

Description of the innovation

The University of Bío-Bío launched the First Year Induction and Integration programme in 2007, with the overall objectives of:

1. significantly diminishing dropout rates, with special emphasis on socially and economically vulnerable students;
2. reducing time to completion;
3. improving the labour market prospects of the students; and
4. improving the quality of undergraduate education.

The First Year Induction and Integration Programme consists of four phases:

1. transition from secondary education to university life;
2. identification of initial difficulties;
3. academic counselling and planning; and
4. identification of at-risk students.

Transition phase. During the first induction period, which lasts four days before the start of classes, all relevant University authorities welcome the new students, brief them on the learning style and requirements in their chosen academic path, and introduce them to the campus.
Identification of initial difficulties. The second phase lasts one to two days in the middle of the first semester. The main objective is to identify, through participative methodology workshops, the difficulties encountered by the new students after the first few weeks of classes and to help them overcome the challenges through relevant advice provided by peer tutors.

Academic counselling and planning. Organised at the beginning of the second semester, this third induction session gives the new students the opportunity to self-assess their achievements so far and outline the challenges they have faced, and seeks to offer positive motivation from the peer tutors to stimulate their integration into their new academic and university life.

Identification of at-risk students. In the middle of the second semester, the induction programme teams identify students at risk of not passing their first year and determine remedial actions to help them overcome their academic deficit at that point.

Developed under the overall responsibility of the Vice-Rector for Academic Affairs, the First Year Induction and Integration programme is managed jointly by the Department in charge of Teaching, the Student Development Department, and the Admissions Department. The induction and integration coordinators rely on the work of volunteer student tutors who undergo a rigorous training programme - counting towards their graduate requirements - to prepare them adequately for their monitoring and academic support responsibilities. Each academic unit is supposed to assign one tutor per 12 new students. In 2015, the University had a total of 132 tutors.

To guide the work of the support teams, all incoming students take a test that measures their learning strategy and emotional development. In the academic programmes with a heavy Science orientation, they also take a Mathematics and Physics test to assess their level and identify existing knowledge gaps.

Over the years, the University of Bío-Bío has strengthened the First Year Induction and Integration programme through four complementary interventions. The first one consists of organising the basic Science curriculum (Mathematics and Physics) into shorter, self-contained modules that allow students who have trouble understanding the Science curriculum to take a remedial course and repeat a module before moving on to the next level.

The second one is a bridge programme linking the University to the local high schools from which a large proportion of new students come. The University works with interested students to help them understand the range of academic options available to them and become familiar with the University environment.

The competency upgrading scholarships granted by the Ministry of Education represent the third element. These scholarships, available to students from the lowest three income quintiles, are meant to finance remedial courses for at-risk students. The University matches the funds received through these scholarships to finance, with its own resources, part of the remedial courses. Remedial interventions are the responsibility of the peer tutors for general subjects or organised as repeat sessions given by the relevant professors in the case of the basic Science curriculum.

The last component is made of cultural and professional internships organised specifically for new students from the lowest two income quintiles, with the goal of widening their cultural horizons and giving them the opportunity to get familiarised with the world of work.

Distinctive features of the innovation

In spite of the impressive results achieved by the Chilean higher education system in terms of enrolment expansion and quality improvement, equity remains a serious challenge. While the net enrolment rate more than doubled in the past two decades, the gap between the richest income quintile and the poorest quintile has also grown. A large part of the problem is that low-income students have a higher propensity to drop out than students coming from better-off families providing them with a lot of intellectual capital. This is why the comprehensive Induction and Integration programme that the University of Bío-Bío has put in place is a key equity promotion factor.

Drivers for the innovation

The University of Bío-Bío receives a higher-than-average proportion of first generation students. In 2005, they represented around 44%, compared to the 26% national average. This means, however, a higher risk that the students would drop out and not complete their degree because of their lower level of academic preparation at the end of secondary education.
Funding for the innovation
The University of Bio-Bio has successfully competed for MECESUP projects to fund its various initiatives. In 2007, it won one of the first four performance contracts piloted by the Ministry of Education that year. The project financed under that contract was called "Social integration and academic success of the University of Bio-Bio students". It financed, among other activities, the launch of the First Year Induction and Integration programme.

The University has continued to fund the First Year Induction and Integration programme with its own resources because it sees it as a fundamental element of the University's institutional strategy.

Embedding the innovation
The University of Bio-Bio introduced the First Year Induction and Integration programme as a university-wide programme from the beginning. Only one component of the programme, the basic Science modular curriculum, was first piloted in the Faculty of Engineering before being extended to all departments that require a strong Science basis.

Impact and success of the innovation
The First Year Induction and Integration programme relies on several instruments to evaluate its impact and guide its development. Over the years, the University has constructed a sophisticated model to measure the academic vulnerability of incoming students and assess, on that basis, their probability of dropping out. The model takes the following 12 variables into consideration: grades in high school, type of high school, gender, locality of origin, Science score in the national University Admissions Examination, income group, upper secondary track, chosen academic career, preference initially indicated in application form, eligibility for academic excellence scholarship, and campus where the student studies. The Institutional Research department also produces regular reports comparing the evolution of the retention and pass rates by academic programme. Deans, Heads of Schools and Department Heads use these data to monitor the situation of their students and suggest remedial interventions through the peer tutors, as needed.

When the First Year Induction and Integration programme started, the dropout rate by the end of the first two semesters was 17%. Students from the lowest two income quintiles made up half of these dropouts, which is disproportionately high, considering that their share in the University of Bio-Bio's total student population was only 44%. Over the past few years, the University has seen a significant improvement. By 2013, the first-year dropout rate had fallen to 8.7%. Over the same period, the cumulative dropout rate at the end of the third year of studies went down from 33% to 26%, and the average duration to graduate from a four-year Bachelor programme was reduced from 6.6 to 4.9 years.

Reorganising the basic Science curriculum and offering remedial courses has proven very effective, leading to a dramatic increase in the pass rates and average grades obtained by the students. For example, the pass rate in Algebra and Trigonometry went up from 66% during the 2005-09 period to 96% in 2010.

The main indicators used to monitor the First Year Induction and Integration Model are the dropout and completion rates, together with the average time to graduation.
HEA topics

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<td>Improving student retention and attainment</td>
<td>Engagement with the community and co-development of curricula</td>
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Context

The University of Cape Town (UCT) is the oldest university in South Africa. It is strong in research as well as in teaching and learning and is the only South African university in the top 100 THE rankings. It has six faculties and a cross-faculty structure.

UCT has over 26,000 students. It was an historically ‘White’ university; but over 61% of its students are now Black. Its classes are very diverse. Many of its students are first generation university students, come from financially and educationally disadvantaged backgrounds, and have English as a second or third language. Others come from financially and educationally privileged backgrounds.

18% of 2014 enrolments were international students; half of these were from SADC countries\(^80\). UCT also receives additional international students through semester abroad agreements, mostly with USA universities.

Major goals for South African education policy after apartheid were to increase access and improve equity as well as quality. These in turn became primary goals of all HEIs who were answerable to the Department of Higher Education Training and the Higher Education Quality Committee of the Council of Higher Education (CHE) for their success. All universities in South Africa are eager to improve throughput rates and to decrease drop-out rates of qualified students. ‘Elite’ universities cannot be seen to have a revolving door for educationally disadvantaged students.

UCT established the first Academic Support Programme (ASP, now Academic Development Programme – ADP) in South Africa and this area has grown in strength over the years to become a cross-faculty structure – the Centre for Higher Education Development (CHED)\(^81\) - with several units and headed by a Dean. The units include the Academic Development Programme, Centre for Educational Testing for Access and Placement, Centre for Innovation in Learning and Teaching and a Careers Service. The Director of the First Year Experience reports to the Dean of CHED.

UCT has led the way nationally in many areas. For example, it developed an alternative admissions test, now used nationally, intended to measure potential in educationally disadvantaged students who do not meet admissions criteria; this is used in conjunction with school leaving results to offer promising students university places. UCT’s pioneering work with extended curricula\(^82\), whereby students complete a degree in a longer period of time, led to a Council on Higher Education Commission report ‘A Proposal for Under-Graduate Curriculum Reform in South Africa:

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\(^{80}\) Southern African Development Community. In terms of the principles of SADC agreements, many South African universities charge SADC students the same fee as local students, rather than foreign fee rates.

\(^{81}\) [http://www.ched.uct.ac.za/](http://www.ched.uct.ac.za/)

\(^{82}\) Extended curricula vary in form, but they are designed to be completed in a longer period of time than the regular curriculum. Normally a three-year degree is completed in four years through taking a reduced load in each year or through having a semester course spread over a year (often in the first year). A four-year degree would be completed in five years.
a Case for a Flexible Curriculum Structure83 recommending a national revision of degree curricula nationally. The report is currently under consideration by the Minister of Higher Education and Training.

Description of the innovation

The first year experience84 (FYE) is a cross-faculty initiative focussing on the first year. The first year of university is seen to have a significant effect on success and attrition rates in that year as well as on subsequent performance; shortcomings in first year students’ development of conceptual knowledge, critical engagement, academic reading and writing and learning approaches are likely to have a cumulative effect.

Although this is an international trend, it is acute in South Africa – students struggle with the transition from school to university for a range of academic, linguistic and psycho-social reasons. It is also not something that South African higher education can afford, given the lower participation rates. First year attrition is a long-standing problem in South Africa and, disappointingly, there has been little change since 2000. Based on information taken from the CHE report cited earlier, attrition rates after the first year for all population groups are over 20%; these also demonstrate racial disparities. The report argues further that first year attrition rates support the contention that the articulation gap between school and higher education presents a challenge both to students and to the system they enter.

Based on research at UCT, there was broad consensus that student academic success in the first and subsequent years depends, in large measure, on the extent to which a range of other needs of students are addressed, including students’ physical needs (accommodation, transport, access to services such as banking etc.), social needs (social space on campus, focal points for meeting etc.), the need for easy access to information (both academic and other information to enable students to make necessary decisions and choices on campus), internet access and so on.

The FYE project aims to promote first year success by working alongside faculties and support service structures to improve student learning. It is part of a Teaching and Learning Strategy for UCT and a component of a plan for regular improvements in undergraduate completion rates by 2020. A specific goal contained in the 2011 Report to Council on The Size and Shape of UCT in 2010 was to achieve a cohort completion rate85 of at least 75% in all undergraduate programmes. The completion cohort data for 2010 (which had just come out) shows that for one of its student groups (White students), UCT had already achieved this target. However, this is not the case with all of the groups entering UCT and within all faculties (notably Science and Engineering and the Built Environment); an important goal for UCT is to achieve equity of outcomes.

The FYE has identified four main objectives; they are to:

1. strengthen pre-admissions support and first year careers advice;
2. provide a welcoming and supportive university environment for prospective and new students in all faculties;
3. promote a renewed focus on first year teaching;
4. promote an integrated approach to student development, linking initiatives that respond to students’ academic, affective, social and material needs.

UCT designed a FYE that drew on best practice internationally as well as the experience of other South African universities (Johannesburg, Stellenbosch and Pretoria in particular).

The FYE recognises that its success will rest in part on the extent to which it aligns with each separate faculty’s goals and teaching and learning strategies. Because of the range of faculties – Commerce, Engineering and the Built Environment, Health Sciences, Humanities, Law and Science – the needs are diverse. However, each faculty already has an Education Development Unit, jointly located in CHED and the faculty, so the various initiatives can and do draw from each other.

FYE has a small, central co-ordinating structure led by a Director FYE acting as a resource, to:


83 http://www.ched.uct.ac.za/ched/fye

85 At least 75% of the students who enter an undergraduate degree programme leave UCT with that qualification.
ensure system-wide levels of provision;
facilitate integration and collaboration across faculties and specialised services;
act as a catalyst for the development of new projects;
partner with faculties on specific projects;
facilitate internal and external media and communication;
identify stumbling blocks so they can be dealt with;
keep first year issues on the institutional agenda;
raise funds for first year provision where appropriate.

Pilot programmes were run in five faculties in 2012. These included:

- a post-orientation programme in designated weekly lunch time slots tailored to the needs of each faculty;
- an Early Assessment project to identify struggling students, but which also resulted in departments reviewing their assessment practices. A review of patterns of performance across programmes is providing diagnostic information to inform the refinement of admissions’ criteria;
- a pilot Early Warning system to test whether the technology introduced\(^{86}\) for flagging vulnerable students via test and assignment results (accessible to both students and staff) was appropriate for the intended goals. The technology was required to capture the information and make it available in a way that is useful to staff and students and not cumbersome to use.

During 2012, an Advisory Committee, chaired by a Deputy Vice-Chancellor, was established to shape the programme for full implementation. In 2013, all faculties ran the first version of their VULA sites.

**Distinctive features of the innovation**

Evidence that first year experience had a powerful effect on attrition rates came from a culmination of extensive development and research work within UCT (see references). It was also part of a realisation that support needed to be extended beyond academic development programmes because students in the mainstream were also suffering unacceptable attrition rates and were not getting the kind of support offered in ADP (approximately 40% of the students admitted to higher education in South Africa leave in their first year). Other reasons for the introduction of the FYE were that existing efforts for entering students were not coordinated or centrally-driven; there was some duplication of effort and resource and some omissions where students’ needs were not met. The FYE embarked on extensive university-wide consultation and worked alongside faculties, and departments within Student Affairs, the Library and the Centre for Higher Education Development. The aim was to build on existing interventions and expertise (such as that described in the Faculty of Commerce Education Development Unit case study elsewhere) as well as to work across traditional boundaries of faculty and other support structures. This work has resulted in improvements in key areas and in the following projects:

- **Orientation helpdesks**: These are pop-up stands in places convenient to students, staffed by senior students during the first three weeks of the semester (i.e., over the two-week Orientation period and for an additional week thereafter);
- **Early assessment**: This allows faculties to monitor academic progress based on grades from mid-semester tests and assignments. After consultation, advisors can direct students to specific support services, such as tutors, mentors, or the Writing Centre. Students are also able to monitor their own progress and to seek help where they feel vulnerable;
- **FYE VULA sites\(^ {87}\) (Vula means ‘open’). These are run jointly by faculties and the FYE. They provide a virtual student support hub and are meant to be the first port of call for essential information. Apart from covering academic and administrative support, weekly polls are run to gauge particular difficulties students might be facing;
- **Extended orientation**: These are mostly run by faculties and include campus tours, curriculum advice and training in digital literacy as well as weekly workshops that provide both academic and non-academic support. Workshops cover topics like essay writing, exam preparation, library research skills, test-taking skills, or managing stress (with varying levels of success across faculties). In addition, there are residence-based

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\(^{86}\) PeopleSoft

\(^{87}\) [https://vula.uct.ac.za/portal/site/gateway/page/gateway-200](https://vula.uct.ac.za/portal/site/gateway/page/gateway-200)
academic orientation programmes as well as an orientation programme to introduce international students to Cape Town and South Africa;

Digital literacy. The work of the Centre for Educational Technology was reviewed in 2012 and new strategies drawn up to move away from mainly 'one-off training' to an approach consistent with FYE systemic interventions to strengthen student and tutor digital literacy as well as to help academic staff improve teaching and learning support;

>Mentoring from senior students, based on UCT research that indicated that students often turned to their peers for support.

The FYE was designed to incorporate a major role for students – from representative bodies and senior students in their roles of tutors and mentors – in policy development and implementation.

Drivers for the innovation

In South Africa, approximately 40% of the students admitted to higher education leave in their first year. This represents a loss of around 45,000 students nationally, all of whom have already demonstrated determination and have met admissions criteria. This is a loss South Africa cannot afford and has to be viewed against an overall participation rate of around 16% in the higher education sector, with well under 12% of the Black and Coloured 20-24 age group participating in higher education. At UCT, despite many well-established and successful teaching and learning initiatives, in 2011, 551 out of 5,036 (10.9%) first year students did not re-register in 2012 (although 267 were excluded on academic grounds). UCT found that support resources were not always clearly recognisable, were uneven across faculties, did not reach all students and were sometimes not well advertised or clearly visible. For these reasons, UCT decided to introduce an integrated approach to helping students make the transition to higher education, linking initiatives that respond to students' academic, affective, social, material, and technological and information needs.

Funding for the innovation

A grant from the South African Department of Higher Education and Training (DHET) funds the permanent Director and her assistant. The grant will last until 2017, after which UCT will fund the posts from the General Operating Budget. UCT funded all set-up costs; existing faculty and other support posts required to co-ordinate the activities are University-funded. There were no additional costs, because the posts already existed; however, posts had additional and revised responsibilities.

UCT has always undertaken significant fund-raising to provide student bursaries and other forms of support as well as to develop new initiatives. For example, a DHET grant allowed the tutorial system to be strengthened in 2013 (UCT is one of the few universities in the country to provide tutoring/small group teaching in every first year course). DHET also funded a one-year contract post to help with the challenges of moving from one-off computer literacy courses to design a broader view of computer literacy. The Saville Foundation provided funds (until 2016) to establish the Helpdesks (staffed by orientation leaders and 'tech buddies'). Outside donors are funding the provision of some mentor positions.

The innovation required massive investment of time and commitment from UCT at all levels from the Vice-Chancellor down. Key posts and services are funded by the University; bursaries are funded by the University and by donors; new initiatives will continue to be funded by a combination of University and outside donors.

Barriers to implementation

Residences opened a day early each year to allow extra time for orientation. However, there are limits to the extent that large faculties can make use of small group sessions and lengthen the period of orientation because of shortage of venues. This has required careful scheduling.

All faculties reported relatively low attendance at extended orientation sessions (reasons given included timetable clashes, competing social events, perceptions that these were add-on sessions for 'weak' students, preferences for individual help, etc.). FYE and faculties have responded by reviewing the timing of the slots, renaming them 'FYE talks' rather than 'orientation' and improving advertising by encouraging links to lecture material by lecturers. While extended orientation was planned as a campus-wide intervention, problems remain and only two faculties (Humanities and Health Sciences) run orientation programmes as originally envisaged.

Recognition of mentor work has been raised in FYE consultations, with consensus that the work should remain voluntary, but given greater visibility and recognition. Attention was paid to ensuring consistency about functions
and purposes of mentoring programmes as well as procedures and processes for selection and training across the different faculties. Payment for student orientation supporters had to be equalised.

**Embedding the innovation**

The innovation is University-wide, with collaboration across faculties and with specialised services (such as health, careers advice etc.). It intends to generate new projects both system-wide and faculty-based. It has an Advisory Committee chaired by the Dean of CHED with membership of two Deputy Vice-Chancellors (Transformation and Teaching and Learning), all Faculty Deans, student representatives and all the relevant department heads or directors of, for example, Library, ICTS[^88], Careers Service, Residences, Well-being etc. Ultimately, the Director of FYE is responsible for FYE across the University and reports to Senate via the Dean of CHED who is the line manager. FYE representatives in each faculty are responsible for FYE in their respective faculties and to their Deans. While the FYE Director has the power to direct initiatives and to monitor successes and challenges, she does this in consultation with the Dean of CHED; any problems would be resolved by the Dean or the Advisory Committee if necessary.

**Impact and success of the innovation**

The FYE is work in progress, but it has been scrutinised in the years since establishment. The extended orientation programme was reviewed in 2012 (interviews with students, FYE representatives and those providing services, as well as a review of global trends), with adjustments made thereafter.

Interviews with first year students in 2012 indicated that students preferred the VULA web site as a means of communication and that they had become adept because of widespread use. Use in academic courses has reinforced its usefulness. Focus group interviews in 2013 indicated that some students were experiencing email fatigue; in 2014, emails were limited to once a week. Refinements continue to be made and links to other internet portals and apps are being used (with less success because these are very broad-based with less ability to identify and separate different audiences).

The Commerce faculty FYE ran a pilot interactive chat function (now mainstream) which answered students’ questions, organised interventions when there were common difficulties and provided motivational support and advice. The site had more than 12,000 hits in its first year.

There have been highly positive evaluations of peer support from both the mentors (who report that mentoring benefits their own growth and is valued by potential employers) and the mentees. Anecdotal evidence, however, might indicate that some students feel ‘over-mentored’; they might be assigned to a general mentor as well as to a residence mentor (if they live in a university residence) and might have faculty mentors too. This clearly requires streamlining.

In May 2015, a South African National Resource Centre for the FYE and Students in Transition[^89] was launched. It is the second such resource centre in the world (the other is at the University of South Carolina). As well as being a resource centre (located at the University of Johannesburg), it will co-ordinate research that will benefit universities across South Africa.

The FYE mentoring programme builds on other successful mentoring programmes at UCT. A pilot programme in the Faculty of Humanities in 2011 to mentor promising Black students towards postgraduate study led to 17 of the 24 mentees being eligible for postgraduate study. The Faculty of Commerce has a Jumpstart Programme that offers a combined academic, mentoring and psycho-social intervention intended to improve progression from first to second year Financial Reporting. In 2010, the time of the initial FYE work, the Jumpstart progression rate was 71% compared with a progression rate of 47% of at-risk students who did not participate in the Jumpstart programme. Since then, this has fluctuated (in 2014, only 56% progressed), but the progression rate for students in the programme is still better than those who do not participate.

Success rates[^90] in first year courses in all faculties except Humanities improved between 2011 and 2014 (overall from 83% to 85%; there was a reduction of 1% to 85% in Humanities). The most dramatic improvements were in

[^88]: Information and Communication Technology Service
[^89]: [http://sanrc.co.za/](http://sanrc.co.za/)
[^90]: Simply, the percentage of students who pass a course.
Science (79% to 84%) and Education (81% to 100%). There were, however, disparities between population groups. The University success rates for 2014 were 81% for Black students, 83% for Coloured, 83% for Indian and 91% for White students.

It is really too early to tell if there have been improvements in subsequent years, although success rates have remained constant, or improved at fourth year from 2011.

The FYE VULA sites have remained popular. Visits from first-year students between January and October in 2013 totalled 28,687 and for the same period in 2014 totalled 39,927.

No other metrics were available at this stage of the project.

References


Case, J. (2012) Every generation has its struggle: A critical realist perspective on student learning in contemporary South Africa. Inaugural Lecture delivered at the University of Cape Town on 1 August.


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91 The previous years were 89% and 88%
92 These are the groups from pre-apartheid days. They remain important for tracking purposes because of inequality of opportunity between different groups.
93 Following the introduction of FYE to a first year intake, in 2012 the overall success rates for second level courses remained the same at 84%, and for third level courses in 2013 also remained the same at 89%; in 2014, the overall success rate for fourth year level courses increased from 94% in 2013 to 96%.
University of Cape Town, South Africa, EDU initiative

Erica Gillard

http://www.uct.ac.za/

Initiative of the Faculty of Commerce Education Development Unit (EDU)

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Context

UCT is the oldest university in South Africa. It is strong in research as well as teaching and learning and is the only South African university in the top 100 Times Higher Education rankings. It has six faculties and one cross-faculty structure.

UCT was a ‘White’ university historically. It has more than 26,000 students, more than 61% of which are Black. Its classes are very diverse in terms of educational background, with students from the most educationally advantaged as well as disadvantaged backgrounds. 18% of 2014 enrolments were international students; half of these were from SADC countries. UCT also receives additional international semester-abroad students, mostly in collaboration with universities in the US.

Major goals for South Africa education policy, after apartheid, were to increase access and improve equity as well as quality. These in turn became primary goals for all HEIs, held accountable by the Department of Higher Education and Training and Higher Education Quality Committee of the Council on Higher Education for their success.

UCT established the first Academic Support Programme (ASP, now Academic Development Programme - ADP) in South Africa and this initiative has grown in strength and size over the years; ADP is now one component in a cross-faculty structure – the Centre for Higher Education Development (CHED) - with several units, and headed by a Dean. CHED’s mission is to ‘promote equity of access, effectiveness of teaching and learning and the enhancement of curriculum, with the twin aims of improving student success and ensuring that UCT’s graduates are globally competitive, locally relevant, socially responsive and fully representative of South Africa’s diverse population’. Each faculty has its own Academic Development Department (called the Education Development Unit in the Faculty of Commerce’s case) with specialist staff. The role of each ADP unit/EDU is to develop faculty-specific ways to implement UCT and CHED’s mission. They relate both to their parent body - CHED - and to discipline-specific needs of the faculty where they are located.

UCT has led the way nationally in many areas relating to access and success. For example, it developed an alternative admissions test, measuring potential, to be used in conjunction with school leaving results in order to identify students with potential for university study despite their school results. This has developed into a national test used by several universities. UCT’s pioneering work with extended curricula fed into a Council on Higher

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94 http://www.commerce.uct.ac.za/EDU/Pages/Welcome

95 Southern African Development Community. In line with SADC principles, many South African universities charge students from SADC countries local fees, rather than international fee rates.

96 http://www.ched.uct.ac.za/

97 Extended curricula refer to the regular curriculum of a programme which is spread over a longer period of time. Students registered for extended curricula enter a programme spread over four years (for a three year degree) or five years (for a four year degree). Many South African universities have their own forms of extended curricula which take into account the reality that an educationally under-prepared student is not likely to complete a degree in previously expected periods of time.
Education Commission report to revise the national curriculum framework\(^8\) (currently under consideration by the Minister of Higher Education).

In 2009 only 16% of chartered accountants in South Africa were Black so this is a national as well as an institutional issue. The Faculty of Commerce at UCT is viewed as prestigious in terms of results and reputation and its entry requirements are some of the highest in UCT (and South Africa). It has been a challenge to increase access, but also to ensure that students graduate from programmes that have had notoriously high drop out and failure rates. Both access and success have improved over the years of this innovation.

The Director of the Faculty of Commerce EDU has won several national awards; there are numerous published papers and a monograph about its innovations; the results are significant in traditionally challenging degree programmes in a faculty with high admissions criteria; expert opinion about good practice in South Africa. 

**Description of the innovation**

The EDU initiative built on a support programme available in the faculty from the end of the 1980s, although notably has changed significantly in form and direction. The innovation has been available to the following degree programmes:

- Bachelor of Commerce (B Com) since July 2000;
- Bachelor of Business Science (B Bus Science) since 2007;
- Bachelor of Business Science (Actuarial Science) since 2010.

Prior to the commencement of this innovation, the Academic Development Programme focused only on academic aspects of the first year with four extended courses. This model had several weaknesses:

- the obligation to do semester courses over a year left stronger students unmotivated;
- high failure rates in the second year as students were unprepared for either the rigour or quantity of work;
- a deficit model combined with the threat of racial stereotyping meant that students felt stigmatised and existing racial divides were aggravated.

The goals of the Faculty of Commerce EDU\(^9\) are to:

- participate in a range of teaching and learning initiatives and approaches that promote engagement with student diversity and graduate competencies that are relevant both to South Africa and a global environment;
- promote access, throughput and a range of competencies;
- work in a multifaceted, multipronged approach over the whole degree period with a focus on academic and affective factors. The model used is a holistic one, acknowledging the multiple factors that contribute toward student success. The approach aims to nurture a strong sense of individual self-efficacy and worth as well as the development of a supportive learning community;
- create augmented and extended courses, allowing for a wide range of student diversity as well as differing degree curricula for different time periods (extended courses run over a longer duration than the regular programme. Augmented courses provide greater support and varying teaching pedagogies to courses in the regular degree programme).

The Faculty of Commerce now has approximately 47% Black students - many of whom will need support. The innovations introduced by the EDU recognise that separate programmes have limited capacity to help students adapt to the mainstream academic environment. This comes from past experience at UCT which found that, while separate programmes offer important support for a time (usually up to a year), ultimately students have to face the pressures of a challenging degree programme where they are not given extra support. Often students leaving separate programmes fail or drop out when they join the regular programme because they are not able to keep up with the pace of work or the material. The model described here attempts to move from a deficit model\(^10\) of academic development for students from disadvantaged backgrounds (i.e., by making up deficits the students

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\(^9\) [http://www.commerce.uct.ac.za/Pages/EDU](http://www.commerce.uct.ac.za/Pages/EDU)

\(^10\) A deficit model assumes that some entering students have a range of deficiencies and that these have to be 'fixed'. In part this is correct, because backlogs have to be made up. However, the psychological effect is that the students see themselves as deficient and it reinforces racial stereotypes of inferiority and superiority.
have in language or other skills) to a model that attempts to harness students’ agency to make them active participants in their studies as well as foster a sense of belonging to a learning community. Rather than earlier models that focused on ‘assimilating’ students into pre-defined expectations, this model seeks opportunities to capitalise on the strengths that students bring from their different backgrounds, in most cases bilingualism or multi-linguistic skills. The results from the innovations are intended to impact on and change the faculty’s practices as a whole, to the advantage of all students. The model also provides supportive conditions for students throughout their degree, not just for an initial period or ‘add-on’ support.

Taking into account differing needs of each individual student in face-to-face interviews on admission, there are flexible entry and exit points. Students could be enrolled on augmented or extended courses (or neither) on different subjects across their degree programme depending on their vulnerability or strengths in that particular subject. The chosen combination can be reviewed and amended at any time - thus a student who is doing well might increase their study load after an initial period. Eligible students can complete their qualification in standard time or over an extended period and all students – regular admissions and students admitted as part of this project - complete exactly the same courses.

Students apply directly to the EDU programme (a positive choice) rather than being ‘placed’ there because they didn’t have enough points to gain entry to the mainstream (seen by some as a stereotype of ‘failure’). A formal course code allows tracking from application and throughout the degree where diagnosis might lead to changes in the course combinations. Some students who did not gain entry to the mainstream programme and chose to enrol on the EDU programme rather than not receiving a place at UCT could be classed as ‘placed’ (25-30% of the intake), this is a big difference from support programmes of the past where nearly all the students would have had no option other than an extended programme with no flexibility or recognition of different abilities.

On admission, students receive individual advice from EDU academic and administrative staff on curricula, financial aid, housing etc. Peer support is an integral part of the community and senior students are encouraged to take on leadership roles and mentor junior students. Every first year student is assigned to a senior EDU mentor (three to four students to one mentor)\(^1\). There is a compulsory weekly small group (15-20 students) course in the first semester (which appears on the degree transcript) with a curriculum designed to support students with the transition to higher education\(^2\). Student development officers work with students individually and in groups. To start with, each student receives an individual counselling session with a clinical psychologist to engage with a range of personal issues in making the transition to university; further counselling sessions are available according to need or demand as the year proceeds\(^3\).

Students in the EDU programme have to attend compulsory ‘Career Discovery’ small groups focused on career direction and the development of graduate attributes. There are also programmes in leadership training, tutor training and staff mentoring (and indeed acting as a mentor or tutor also develops important skills).

On the social side, outings and events are organised, often by students, and there is an EDU newsletter.

Cross-disciplinary collaboration among lecturers allows for transfer of knowledge and skills across disciplines.

**Distinctive features of the innovation**

The EDU programme has been successful in mostly removing the stigma previously attached to separate remedial skills programmes by providing a ‘value-added’ experience throughout the degree, as well as including choice and appropriate placement in combinations of courses in the admissions procedure. It is not always evident which students are enrolled on the EDU programme. This has increased diversity in the programme as well as a variety of curriculum options and has stimulated change in the mainstream. Numbers of participants as well as graduation rates have increased.

Good practice in this project has been a springboard for similar practices in the mainstream. These include a forum known as the Commerce Education Group that has met every two weeks for the past 15 years. It provides supportive engagement with any issues that pertain to teaching and learning; presentations are mainly from

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\(^1\) [http://www.commerce.uct.ac.za/EDU//Pages/Mentoring-Programmes](http://www.commerce.uct.ac.za/EDU//Pages/Mentoring-Programmes)

\(^2\) [http://www.commerce.uct.ac.za/EDU//Pages/Step-Up](http://www.commerce.uct.ac.za/EDU//Pages/Step-Up)

\(^3\) [http://www.commerce.uct.ac.za/EDU//Pages/Counselling-Services](http://www.commerce.uct.ac.za/EDU//Pages/Counselling-Services)
academics in the Faculty of Commerce. Other elements of good practice that have been adopted across the faculty include tutor training, a Teaching and Learning Working Group, writing consultancy (working individually, in large classes and with lecturers), student development services (including counselling), and a staff mentoring scheme.

It is important to the faculty that all mainstream academic staff focus on teaching and learning in addition to discipline specificity. While dedicated EDU lecturers teach first year EDU course students, mainstream lecturers complete the teaching requirements of the course and thus these lecturers also have to be able to deal with the level of diversity in their classes. A further factor is that it has long been recognised that results across all levels of Faculty of Commerce degrees require improvement, and improvements have been facilitated through this initiative.

The vision of the Faculty of Commerce is to be the leading national exemplar of an economic development hub, promoting collaboration between public universities and the private sector. The EDU is supported by major companies who depend on universities to produce the type and diversity of graduates they need and who allow them to meet their own employment equity targets.

Drivers for the innovation
The majority of Black and Coloured university students come from impoverished, rural or working class backgrounds; they are first-generation university students, with English as their second or third language. These students find themselves in the same classes as students from economically and academically privileged backgrounds. An elite university such as UCT faces two major challenges in teaching and learning practices: firstly, to ensure the success of talented, but ill-prepared students, and secondly, to deal with a very diverse student enrolment in the same programme (different from the case of a university with a more homogenous student body). UCT’s response has been both individually focused - on the student - and systemically focused - on academic staff, the curriculum and teaching and learning practices. These foci are reflected in the trajectory from an Academic Support Programme (mostly focusing on remedial or add-on courses) to an Academic Development Programme (increasingly focusing systemic responses) to a Centre for Higher Education Development where all preceding elements of its history are retained in its current broad mission.

Funding for the innovation
UCT is unique in having established an entire cross faculty structure for education development and CHED has established EDU equivalents in all faculties. In this respect, there has been major institutional funding for transformation across the University. In addition to University funding, the Faculty of Commerce EDU receives external funding from several sources; major sponsors include Investec, KPMG, Liberty Life and the Saville Foundation. While private sector companies continue to struggle to change their own profiles, they are likely to continue to fund bursaries for disadvantaged students and initiatives of this sort. The Department of Higher Education and Training has also funded aspects of the programme in major national bids to improve graduation rates across South Africa.

The initiative is likely to continue being funded by institutional as well as external funds. South African companies have well-developed corporate social responsibility programmes which often focus on improving opportunities for Black students (available for recruitment later). The Faculty of Commerce has also provided generous funding out of the general operating budget; the faculty has given the programme strategic priority and funds it accordingly.

Barriers to implementation
Students entering the EDU programme have achieved good school-leaving results and have shown initiative and determination in being admitted to university, despite their disadvantaged backgrounds. Irrespective of their prior dedication and hopes for their future, however, most experience a crisis of confidence in the new environment. The support provided in this model - academic, practical and social - builds up confidence in the context of a learning community.

Another barrier that had to be recognised was that good school results do not necessarily reflect actual competence. For example, sections of the syllabus might have been omitted at some schools or text books were not available, leaving gaps in what a university might assume students already know. In addition, the national curriculum for school Mathematics is regarded as not being at the required level and standard expected for programmes such as Actuarial Science. The EDU has responded to this by augmenting some of the courses to compensate for identified gaps and deficiencies.
Other constraints relate to both the capacity of the unit as well as the problematic nature of focusing on mostly Black students. The Unit has found itself being asked to engage with other vulnerable students outside EDU course enrolments. They have thereby been challenged to make an impact on mainstream practices and this they increasingly do; lessons learned from the initiative increasingly apply to any student. Similarly mainstream academic staff pay more attention to teaching and learning than they might have done in the past.

Relationships with mainstream staff were built up slowly, helped by external pressures particularly from the accounting profession. Academic staff realised the value of the changes when they saw improvements in their own classrooms and as a consequence, resistance to the initiative is low. Nonetheless, all staff have had to invest time and effort in revising curricula and developing new practices.

Distinctions between EDU and the mainstream have increasingly been reduced as all courses have had to deal with similar issues including language, task design, and pedagogy etc. The EDU is now regarded as the ‘flagship’ of the faculty.

**Embedding the innovation**

Extended curricula were introduced in several UCT faculties more than 15 years ago and this innovation builds on those experiences. UCT agreed on faculty-specific responses, so the example discussed here is specific to the Faculty of Commerce. Different models are used across other faculties. Good practice from this model has been drawn upon in designing the First Year Experience introduced across the whole university and relieving EDU of some of its tasks.

The South African Institute of Chartered Accountants introduced their first bursary students to the programme in 2005. Other large bursary programmes, such as Allan Gray and the Michael and Susan Dell bursaries, all make it a condition for bursary recipients to be part of the programme.

First year interventions have been formalised with course codes which allow for better monitoring by staff and students and have become the basis for the appointment out of faculty funds of three new student counsellors working for the entire faculty.

The findings from work with affective factors have contributed towards the appointment of a National task team of the National Student Financial Aid Scheme to review their current modus operandi of focusing on financial need only.

There are extended degree programmes in the Faculties of Engineering and the Built Environment and in Science. However, UCT rejected a one-size-fits-all approach and each model has different approaches and varying levels of success. All are informed by the overall work done in the Academic Development Programme and CHED.

The Faculty of Commerce EDU has had a positive national influence. The Director reported that they have regular visits from other universities whose staff spend a few days with the Unit, interviewing staff and students, attending classes and class meetings as well as other events to get a sense of how the model works and how they might apply it to their own university.

**Impact and success of the innovation**

There are several components to the ongoing evaluation:

- regular meetings and critical reflection on teaching pedagogy and structure. This has resulted in ongoing formative evaluation procedures with students to help ascertain teaching and learning effectiveness;
- formal mentoring and evaluation of new curriculum projects which have led to the introduction of two new courses;
- evaluations twice a year of the programme, and student experiences;
- staff mentoring scheme to develop teaching;
- formal summative evaluations at the end of every course.

The total number of students across all years in the EDU programmes increased from 44 in 2000, 74 in 2001 to 1163 in 2015. The EDU programmes had 260 first year students in 2015 (just over 20% of all first year students).

First year results in the EDU programme have mostly out-performed those in the ‘mainstream’ programme for more than five years. The graduation throughput rate increased rapidly from 40% in 2001 to approximately 78% at the end of 2014; this is far above the national average of 31% for Business and Management programmes.
There has been an increase in the numbers and percentage pass rates of those students writing professional examinations like the Chartered Accountant Board Examinations. To date, approximately 280 EDU students have qualified as Chartered Accountants and pass rates for the professional examinations have ranged from 8% to 96%.

A book detailing aspects of the experience is now available.

Context

Founded as the “New Community College of the City University of New York (CUNY)” Stella and Charles Guttman Community College (GCC), as it is now named, was the first new community college in the CUNY system in 40 years. In April 2013, the College received a $15m gift for endowment from the Stella and Charles Guttman Foundation to support activities such as paid internships, community service and experiential learning, and for scholarships and student emergency funds. The College was renamed after the donors.

GCC opened in 2012, after four years of planning. Its goal was to offer a different model of community college education, specifically addressing the challenge of attainment. It enrolled its inaugural class of 289 students in the Fall of 2012. Fall 2014 enrolment was 691 (90% full-time, 88% non-white, 75% eligible for Pell Grants\(^{104}\). The majority of students are of traditional college age. Plans call for enrolment to grow to approximately 5,000 when the College moves to its permanent home. As an open-admissions institution, the College accepts applicants who have a high school diploma or its equivalent.

Description of the innovation

As a new institution, Guttman has introduced an innovative educational model that brings together multiple high-impact practices (i.e. first year experiences, learning communities, and experiential learning) to improve teaching and learning, retention, and graduation rates.

**TEACHING AND LEARNING STRATEGIES:**

*Learning outcomes:* The curriculum is organised around five broad learning outcomes (called Guttman Learning Outcomes or GLOs) based on the Degree Qualifications Profile\(^{105}\) (a US version of a qualifications framework for an undergraduate degree) and the Essential Learning Outcomes\(^{106}\) developed by the Association of American Colleges and Universities (AAC&U), an association providing leadership in liberal education and curriculum development. The outcomes are:

1. broad integrative knowledge (general education);
2. specialised knowledge (the major);
3. intellectual skills for lifelong learning;
4. civic learning, engagement, and social responsibility; and
5. applied learning.

*Bridge programme.* This programme is required of all students entering GCC. It provides an introduction to the first year interdisciplinary curriculum, engages students in a research project on New York City, begins the creation of student e-portfolios, and introduces students to the learning community to which they will belong.

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\(^{104}\) The Pell Grant programme is a federally funded means tested need-based financial aid programme for low-income students.


**First year experience (FYE):** Students must commit to full-time enrolment during the first year (see below for a description of the academic calendar and scheduling of classes). All students take a core set of classes, using experiential learning and the city as a learning venue. Remedial coursework is embedded into credit-bearing courses. The curriculum focuses on such issues as sustainability, food, housing, gentrification, consumerism and immigration. During the first year, students are placed in Houses and travel together for the year. Each House has a set of faculty who teach the students throughout their FYE as well as its own Student Success Advocate (SSA – first year advisor). Each House consists of three cohorts of 25 students, faculty who teach all the courses, and a Student Success Advocate who is assigned to each House. Each House with its students, faculty and SSA together includes three learning communities or cohorts. This continuity of faculty and advising for students offers academic and social/emotional support that many first year college students need.

**Instructional teams:** GCC has replaced the traditional divide between academic affairs and student services with the concept of ‘Instructional Support Teams’ for first year students. The teams consist of faculty and Student Success Advocates, who work to support students and troubleshoot obstacles to their success. They meet weekly to discuss student progress.

**Career Strategists:** After the first year, Career Strategists, according to their academic backgrounds and prior employment history, are assigned to work with students according to the majors selected. One Career Strategist generally supports each major. Career Strategists counsel students individually, advising about choice of majors, transferring to a four-year institution and careers. They help students create e-portfolios that include not only their academic history but also leadership at the college and activities off and on campus in internships and employment.

**Innovative schedule and academic calendar:** Full-time attendance is required in the first year; students can choose to take classes in the morning or the afternoon. Fall and Spring semesters are divided into two sessions; one 12 weeks and one six weeks in length. Students who are not successful in their 12-week session can use the shorter cycle to complete their coursework and stay with their learning community. Or, they can take additional courses for credit and stay on track to graduate in two years.

**Transfer and career advising:** Students must participate in a weekly 90-minute advising seminar, which is tied to a required two-course sequence, Ethnographies of Work. These courses introduce students to different perspectives on the culture of work as they investigate a range of careers. They gain a deeper understanding about the world of work and different occupations in order to make informed decisions about their major and career path. During the second year, students have opportunities to participate in internships and other work such as field work or undergraduate research.

**The Center for College Effectiveness (CCE).** CCE’s activities combine the functions of a traditional office of institutional research (collecting data and analysis of data on enrolment and progress; participating in national studies) with institutional effectiveness.

**Professional development:** As Guttmann is a very new institution, professional development structures are still under development. “Throughout the first year, faculty and staff participated in e-portfolio workshops and activities. Participants were learning “on the fly;” leaders helped them work with the technology, design integrative assignments, and develop reflective prompts.” (Gambino 2014). GCC continues to develop and offer professional development to meet the evolving needs of faculty and staff.

**Assessment:** Teams of faculty, staff and students are built around each GLO. Each GLO is assessed on a three-year cycle. Year 1 is devoted to inquiry (gathering the team, identifying research questions. Year 2 focuses on data gathering, and the discussion of meaning of data. In the third year, the team makes recommendations for curricular change. The teams examine samples of student e-portfolios collected at various milestones during their studies that reveal student progression in relation to the GLOs, identify needed curricular improvements, and implement them. E-portfolios are at the centre of the assessment process. Students incorporate signature assignments and reflections on their learning in their e-portfolios and submit them at key points in their studies, which are: the end of the bridge programme; the end of the first year; and the end of the second year. Additionally, faculty instructional teams examine student work and e-portfolios in relation to course, programme, and student learning outcomes during assessment days, identifying strengths and weaknesses and areas for improvement. They use collaboratively developed rubrics to assess student work in relation to GLOs.

**Assessment days:** Dedicated assessment days are built into the mid and end-points of each 12 week Fall and Spring semester. Instructional teams, which include faculty, staff and advocates for student success (advisors)
conduct an assessment of student work via their e-portfolios. Assessment teams then identify areas for curricular improvement.

**E-portfolios**: e-portfolios have multiple uses. They are the vehicle through which GCC delivers course materials to students (rather than a learning management system). Each instructional team develops an e(portfolio that contains syllabi, assignments, videos, or other instructional materials that are shared with students and updated regularly, providing them with a single space to find what is needed for courses.

E-portfolios also serve as the primary vehicle for assessment at GCC, using authentic student work assigned in their courses; they also include reflections on students’ learning. Students’ e-portfolios experiences begin in the summer during their mandatory bridge programme. Using Digication, Guttman’s e(portfolio and assessment platform, students create their learning e(portfolio. They author a ‘Who Am I’ essay and begin to customise their e(portfolio. E(portfolio use is integrated throughout the summer bridge curriculum and co-curricular activities. At the conclusion of the bridge programme, students submit their e-portfolios to Digication’s assessment system; those portfolios are used to assess the programme and serve as a baseline measure of the GCC learning outcomes (GLOs). Student use of e-portfolios helps unify GCC’s required first year curriculum.

E-portfolios are also used in GCC’s academic support structures, helping students to develop the skills and persistence needed to be successful. In this support context, students develop journals to reflect on their learning. Project-based activities connect with the bridge programme and first year coursework, enabling students to gain a better understanding of themselves as learners. Portfolios centre on improving learning through careful attention to the curricular, co-curricular and affective dimensions of the student experience.

Through a culminating assessment e(portfolio, students are asked to identify one or two portfolio entries for each outcome (over time) and reflect on how that entry demonstrates that the student has met the outcome. As noted above, at the institutional level, each outcome is evaluated on a three-year cycle. Additionally, all programmes are reviewed on a five-year cycle (See Gambino 2014).

In addition, most faculty members and advisors have their own e(portfolio where they share information about themselves, their teaching and research and outside interests.

**Distinctive features of the innovation**

As a new institution, Guttman Community College was designed from the ground up to integrate a variety of research-based best practices that have a positive impact on student learning and success. Most institutions use a few high-impact practices but few can be as intentional in creating a design that integrates so many strategies to promote successful learning. GCC’s innovative model bridges traditional divides such as those between academics and student support services and remedial and college-level studies in service of promoting student learning.

**Funding for the innovation**

Some special initiatives, such as internships, are supported from the endowment, but the main features of this innovative institution are funded from its operating budget.

**Drivers for the innovation**

US community colleges today function primarily as the entry point into higher education for low-income and first-generation students, many from schools that have prepared them inadequately for college. 45% of all undergraduates in the US enrol in community colleges. More than half of all Hispanic and African-American students who attend college following graduation from high school enter two-year institutions. Retention and completion is a significant challenge for all community colleges. Thus, if the US is to improve college completion rates for all students, and especially for students of colour, successful attainment at community colleges is a key strategy. Guttman Community College was created to address the barriers to degree completion by developing an innovative approach to retaining students and graduating them to transfer programmes or their chosen careers within three years.

**Embedding the innovation**

A report on GCC’s inaugural years described the difficulties of launching a very different model of institution as follows:
Creating a model to bridge longstanding disparate traditions required a commitment from everyone involved at GCC - a commitment that was often widely affirmed but at other times met flashes of resistance. The process required that all participants build a common understanding of the model within the college while also meeting the challenges of the external environment. Inequitable power relationships as well as variations in history and experience required everyone to translate across discourses and mediate the implementation of the GCC design. At times, this meant breaking down the walls between those invested in traditional practices and those proposing an untested model using many different, sometimes untested strategies.

The design of the College affects all faculty and staff and thus is by definition embedded. Ongoing professional development is key to the culture of GCC.

**Impact and success of the innovation**

Graduation rates are a key metric. The goal in establishing the college was a 35% graduation rate after three years; GCC expects to surpass it. The retention rate for the class that entered in Fall 2013 was 69%; the graduation rate after two years for the first class was 28% (The National Student Clearinghouse, tracking students across all institutions, estimates the six-year graduation rate for all community college students to be 39%).

Continuous assessment has led to a number of curricular improvements. Each year the Summer Bridge curriculum is refined. GCC is currently working on improving its academic support systems for new and continuing students as well as its advising curriculum.

**References:**

Queensland University of Technology, Brisbane and James Cook University, Townsville, Australia

Dennis Murray

https://www.qut.edu.au
https://www.jcu.edu.au

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Context

This innovation was developed initially in the Queensland University of Technology (QUT). It has been extended to James Cook University (JCU) and other Australian universities.

40% of QUT students were the first in their family to attend university and approximately 33% of them belonged to one or more under-represented groups, with the largest concentrations being students from rural and regional backgrounds (19%) and low socio-economic backgrounds (14%).

Institutional research had shown that appropriate interventions in students’ first year significantly improved student retention and had, among other things, substantial economic benefits for the University.

The initiative originated in the early 2000s and was pursued through the leadership of Professor Sally Kift, at that time Professor of Law and Assistant Dean, Learning and Teaching in the Faculty of Law and QUT’s Foundational Director, First Year Experience (2006-07). In the latter role, she achieved significant enhancements to QUT’s policy and institutional culture in the areas of first year student engagement, support and curriculum design.

Subsequently in 2012, Professor Kift was appointed Deputy Vice-Chancellor (Academic) in James Cook University where the innovation has also been adopted.

Description of the innovation

The innovation focuses on articulating a transition pedagogy to frame, support and enhance the first year learning experience in Australian higher education.

AIM

The innovation aimed at lifting the attainment and reducing the attrition of the increasingly diverse cohorts of students entering QUT, a situation faced by Australian universities generally. In response, ‘transition pedagogy’ seeks to provide an integrative, whole-of-institution and whole-of-student, framework to support first year learning, success and retention.

CONCEPTUALISATION

Transition pedagogy adopted a curriculum focus to the first year experience (FYE) as the conceptual missing link in FYE theorising and practice. By conceiving of curriculum broadly as the totality of the “student experience of and engagement with their new program of tertiary study”, transition pedagogy focuses on what students have in common – their learning mediated through curriculum, which is within institutional control – rather than studying problems due to diversity and difference.

The three main breakthrough points of this conceptualisation were:

- understanding and acting intentionally on the centrality and commonality of curriculum in the first year student experience,
- adopting whole-of-institution and whole-of-student approaches, and
- harnessing the enabling capacity of academic and professional staff partnerships for this purpose.
PROGRAMME ELEMENTS

Transition pedagogy is framed around six First Year Curriculum Principles (FYCPs). The FYCPs represent a coherent and comprehensive approach to delivering a positive and supportive FYE, where academic and social engagement is driven through curriculum that is intentionally designed to:

- proactively support academic and social transition to tertiary study;
- acknowledge and mediate student diversity in entering preparedness and background;
- be coherent, inclusive, explicit and foundational in its design;
- enable early engagement with students’ learning, their peers and staff;
- aid early acquisition of tertiary assessment literacies and provide early feedback; and
- harness evaluation and monitoring to enable timely support interventions for at-risk students.

Transition pedagogy’s integrative potential is optimal when all of the FYCPs are operationalised strategically across the entirety of a student’s institutional interactions and engagements. This integrative power is what defines transition pedagogy as a ‘third generation FYE approach, which combines first generation (co-curricular) and second generation (curricular) approaches in whole-of-institution transformation. In this way, the first year experience is conceptualised as ‘everyone’s business’ and enacted seamlessly across the whole of an institution, its disciplines, programmes and services by academic and professional staff working together in partnership.

The organising framework of transition pedagogy is defined as a ‘guiding philosophy’ for first year curriculum design and student support that carefully ‘scaffolds and mediates’ the first year student learning experience for current day heterogeneous student cohorts. The integration of strategies and principles as transition pedagogy is shown schematically below.

![Diagram of Transition Pedagogy - 3rd Generation FYE Policy & Practice](image)

**Figure 1. A Transition Pedagogy and Six First Year Curriculum Principles Framing its Implementation. (Kift et al. 2010, p. 11).**

Multiple examples of transition pedagogy in practice are explained in the case studies (see below) and elsewhere. However to take a small number:

**Example 1: Orientation as a process, not an event.**

Enshrined in QUT policy since 2007, new student orientation is conceptualised as a process that occurs over time, both independent of the curriculum and mediated by it. A ‘just in time’ initiative instigated within the QUT Faculty of Law involves first year students receiving, across the whole of first semester, a weekly degree-tailored email from the Assistant Dean, Learning and Teaching providing a staged delivery of information dealing with issues such as: where to go and who to contact for Law School information; getting connected to IT and online facilities; employment opportunities; counselling services; plagiarism; Law Library and general study skills workshops; drop-in tutorial details; how to go about your tutorial presentation; confirmation that it is normal to ‘hit-the-wall’ in about weeks five to seven; and a weekly study hint.

**Example 2: Cross-institutional assurance of peer mentoring.**
Working with academic and professional staff across the university, QUT was able to identify the many and varied peer-to-peer opportunities that students had available to them across QUT and to bring the staff directing those programmes and practices together with a view both to validating this previously unrecognised work and to enabling a consistent look and feel to all these various initiatives in a way that makes sense to students and was student-facing (e.g., by way of standardised mentor reward and recognition, common T-Shirts and branding, sharing and up-scaling of practice across organisational areas, etc.). This process is sustained and coordinated by the Head of QUT’s Counselling Services.

**Example 3: Facilitating student agency in the administration of their learning.**

In 2005 at QUT, pedagogical and administrative imperatives brought to fruition an academic and professional staff initiative that saw the design and deployment of a web-based transition portal to provide a personalised, one-world, student view of all their potential interactions with the institution - academic, administrative and support. The web-based digital interface was designed with specific regard for the characteristics and skills of commencing students in particular and their preferences for use and interaction with technology in support of their learning. Functionally, the portal had five key elements, each of these with a drill down, store and archive capability: an individual student calendar; a message portlet (subject-specific academic messages as well as critical date administrative messages); access to student selected resources (e.g. discussion forums); direct access to the QUT Learning Management System (LMS) for subject materials, resources and learning activities; and the most recent emails sent from a QUT address.

This intervention, which was unique in the sector at the time, was a significant portent of the transformative power that coordinated cross-institutional partnerships, once exploited, could have on the student experience.

**Example 4: Intentional curriculum design**

The initiative’s discipline case studies provide specific examples of intentional first year curriculum design. Common strategies deployed include the provision of equitable opportunities for learning and engagement by:

- enacting inclusive curriculum design (e.g., allowing for flexibility and choice; including multiple perspectives in examples and readings; using class time to normalise transition and diversity issues such as academic advising, just-in-time referral to academic support services and counselling; developing self-management and study skills);
- explicitly unpacking the hidden rules of success required for mastery of the tertiary student role (e.g., by building on the acquisition of essential discipline literacies through skills development guides and workbooks; cumulative assessments);
- harnessing student motivation (e.g., with authentic content and assessment; making explicit links to employability outcomes);
- embedding peer-to-peer interactions.

**Example 5: Aiding transition to assessment in higher education**

The fifth FYCP directs attention to enabling students’ successful engagement with tertiary assessment practices, specifically by supporting student acquisition of assessment literacies and providing early, and then regular, feedback on learning to both students and staff. Examples include:

- alleviating first year assessment anxiety by being explicit and consistent about assessment expectations, what constitutes success in discipline assessment, and the meaning of assessment verbs and tasks;
- proactively supporting the development of assessment skills and literacies (e.g., referencing; paraphrasing; teamwork; what feedback is and how to make use of it; understanding criteria and standards); and
- timely provision and optimisation of feedback.

**INNOVATION OUTPUTS**

Outputs from the innovation include:

- seven discipline case studies exemplifying intentional first year curriculum design for transferable implementation involving Australian and one Canadian University:
  - Arts and Social Sciences (Simon Fraser University);
  - Education (QUT);
  - Law (James Cook University);
– Applied Sciences (Simon Fraser University);
– Communication and Creative Arts (Deakin University);
– Information Technology (QUT);
– Science (Biology) (University of Melbourne)\(^{107}\);

> a set of 17 ‘expert commentaries’ on the first year curriculum case studies collected from a range of perspectives deemed critical to a transition pedagogy\(^{108}\);
> the distillation of a set of *Guiding Principles for a Transition Pedagogy* (subsequently renamed *First Year Curriculum Principles*) that could serve as benchmarks for intentional first year curriculum design\(^{109}\);
> a dedicated Transition Pedagogy website containing all the details of the project and all the resources\(^{110}\);
> resources from a 2009 National Symposium (including a video)\(^{111}\).

**Distinctive features of the innovation**

The innovation provides a flexible and integrative framework for thinking about and designing intentional curricula for first year learning and teaching that allows different institutions to conceive and to contextualise their curriculum design to meet diverse institutional circumstances based on the nature of the first year student cohort. The framework is not prescriptive, but an aid to ‘thinking’ that is relevant to a wide range of different institutions and indeed national context settings.

**Funding for the innovation**

Initially, as described above, QUT funded a variety of initiatives around improvement of the FYE. The initiative grew out of early QUT support but received significant Australian Government funding as described above. This latter support ended in 2009.

QUT continued to support the initiative throughout the course of the Fellowship and initiated embedding of the Framework and First Year Curriculum Principles prior to its completion. Support has been ongoing and extended to embed the six curriculum principles as core institutional policy and practice in curriculum design for the first year student experience. QUT has maintained a high level academic FYE leadership role, established dedicated positions of first year coordinators across the university to facilitate the take up and embedding of the innovation and supported numerous extension projects (e.g., Transitions in Project and the Student Success Program) to further embed the innovation.

Following Professor Kift’s appointment as Deputy Vice Chancellor (Academic), JCU also quickly moved to implement a transition pedagogy across JCU by establishing a number of dedicated positions, including a Deanship of Learning, Teaching and Student Engagement within the Division of Academic and Student Life, dedicated first year coordinators and student support officers. JCU has embedded Strategic Integrated Learning Advisors (SILAs) to provide early, systematic program-based student learning support and is also deploying program-focused ‘Retention Action Teams’ comprised of a broad range of academic and professional collaborators.

**Barriers to implementation**

Fundamentally, the innovation depends on a partnership of academic and professional staff, all ‘with a seat at the curriculum table’. Recognising that the initiative would have to be led by academic staff if it were to succeed, Professor Kift undertook a brokering role by enabling collaborative opportunities and, in some instances, establishing parallel committees to effect policy changes, activate working groups and bring early adopters on board.

Crucially, university senior management at QUT was supportive from an early stage. In particular, following completion of Professor Kift’s Fellowship and the dissemination of the Framework and Curriculum Principles, QUT leadership moved substantially behind the innovation to stress its importance and to tangibly support its adoption.

\(^{107}\) [http://transitionpedagogy.com/case-studies/](http://transitionpedagogy.com/case-studies/)
\(^{110}\) [http://transitionpedagogy.com/](http://transitionpedagogy.com/)
across QUT. The Principles were picked up over time as part of QUT’s commitment to widening student participation and associated commitment to improving student retention. Related improvements in corporate data collection, analysis and use helped to facilitate successful implementation.

At JCU, many initiatives were already underway by virtue of an existing 2012 Transition Initiative Framework, which had already been influenced by the Fellowship thinking. In that institutional context, transition pedagogy was harnessed as an integrative, organising framework to bring institutional practices together as a coherent, assured whole and to redeploy effort more strategically.

Finally, the synchronous alignment of policy and practice is critical to ‘third generation’ uptake and embedding of transition pedagogy in a sustainable way across the whole of an institution. A ‘top-down, bottom-up’ approach for intentional action is needed. An institution needs first to identify and then coordinate individual, dispersed FYE efforts to ensure sustainability and coherence of initiatives across its organisational areas. Building on this approach, a model for institutional action is then needed which can focus [top-down] commitment to an enduring FYE culture as an institutional priority that is, both in rhetoric and reality, ‘everybody’s business’.

Significantly, the initiative has also received substantial international exposure and attracted considerable interest in a number of countries. Expert international commentators and collaborators (from the University of Brighton, UK; University of Auckland, NZ; University of Strathclyde, UK; Simon Fraser University, Canada) were instrumental to the project in its development stage, as were educational experts, Professors Mantz Yorke (UK) and Vincent Tinto (US). Evidence of international adoption and resonance with later international research and initiatives are set out in a 2015 Review article (Kift 2015).

**Embedding the innovation**

Momentum was built up and gained when Professor Kift received a National Teaching Award (AAUT) in 2003 and one of three inaugural Australian Learning and Teaching Council (ALTC) Senior Fellowships in 2006 specifically for this particular project. The initiative was designed purposely to be multi-faculty/multi-disciplinary, including through the seven commissioned case studies referred to above.

**Impact and success of the innovation**

The initiative, in particular the Fellowship and its outcomes including the First Year Curriculum Principles, were formally evaluated through extensive peer review and independent external evaluation. Bovill, Bulley and Morss (2011), examining the literature on first year curriculum design, commented favourably on transition pedagogy and the FYCPs in the context of growing international attention directed at the centrality of curriculum to engage and empower first year students.

Over the time since the innovation and especially the FYCPs were developed, feedback has indicated the Australian university sector’s overwhelming acceptance of their validity, and acknowledgement of their flexibility and applicability across contexts and delivery modes. Take up at QUT, University of Technology Sydney, Charles Sturt University, Victoria University, University of Wollongong and JCU has been “salutary and transformative” (Kift 2015).

Transition pedagogy and the FYCPs have been influential in the development of the inaugural Australian Higher Education Standards Panel's 2014 advice to the Commonwealth Minister for Education when proposing the replacement Higher Education Standards Framework. Evidence of transition pedagogy’s influence is evident especially in the proposed Orientation and Progression Framework aspects.

In summary, over the last decade the academic leadership of this work, once invisible has become increasingly assured as FYE governance structures, policy enhancements and University-level committees become commonplace.

In both QUT and JCU, and universities elsewhere, measures of retention and attrition indicate the ongoing success of the innovation. Attrition rates at QUT for example dropped four to five percentage points over the years of concerted FYE effort. At JCU, early indications and evidence show improved retention of between 1.5%-4% per year in target courses. Overall, JCU’s 2015 retention analysis (on 2014 data) indicates an improvement in 2013-14

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112 http://docs.education.gov.au/node/37863

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from 2012-13 of 1.47%, a significant enhancement in one year of dedicated effort, especially when considered in the national context. In that regard, on the most recent national Australian data available, it is evident that JCU’s first year attrition rate is falling while attrition is increasingly generally across the Australian sector (Department of Education 2015).

Of course, not all of this change can be attributed to the introduction of transition pedagogy. However, there is widespread acceptance at QUT and elsewhere that transition pedagogy has played an instrumental role in improving student retention in the first year and then subsequently through the later years of study.

References


Section F. Promoting collaboration (particularly with the community) in the co-development of relevant curricula

Widener University, Chester, Pennsylvania, US

Madeleine Green

http://www.widener.edu

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Context

Widener is a private doctorate-granting university with 3,047 undergraduate and 2,500 postgraduate students. Its constituent units are the College of Arts and Sciences, School of Engineering, School of Nursing, School of Business Administration, Widener University Delaware Law School and Widener University Commonwealth Law, School of Human Service Professions, and the School of Education, Hospitality, and Continuing Education. It is located in an economically depressed community, and since 2003, civic engagement has been a key feature of Widener’s identity and mission, embedded across the university. It is one of 76 institutions receiving the ‘civic engagement classification’ under the new Carnegie classification system and was finalist for Presidential Honour Roll (for excellence in civic engagement).

Chester is a small city of about 33,000 people; 75% of its population is African-American. Although the population of the surrounding Delaware County grew between 2000 and 2010, it declined in Chester by 7.8%. It has lost 40% of its population since 1970. In 2010, its poverty rate was 32%. The school district was ranked one of the lowest in Pennsylvania, and was plagued by leadership turnover. There were eight superintendents between 2000 and 2010. When James Harris arrived as president in 2002, Widener was planning to build a fence to create a gated community around first year student housing. Instead, the president launched an initiative to rethink its mission to engage the City of Chester. This re-orientation of Widener had a profound impact on the University as well as on the community.

Description of the innovation

With the arrival of a new president in 2002, Widener began the process of committing itself to the long-term viability of its community (the City of Chester) and to transforming the education it provides to its students.

In 2000, the Social Work Counselling Services initiative was created to address the gap in the human service needs of residents in Chester. It was developed collaboratively by Widener's Center for Social Work Education and a local community partner, the Chester Education Foundation, to provide social work services to local grassroots organisations. The concept of a university-sponsored field internship emerged out of faculty interest in serving the local community, integrating the social work model of professional skills training through field internships with civic engagement models of service learning as well as engaging the human capital of students in supporting revitalisation efforts. Currently, Social Work Counselling Services fulfils a dual mission of maximising student learning opportunities and expanding the capacity of the human service infrastructure within the community. It provides free direct social work services to local residents and free or low-cost capacity-building services to community-based human service and educational organisations, including the Widener Partnership Charter.
School. Clients are seen on site at partner agencies, in their homes, or in Chester community hospital programme offices. Social Work Counselling Services also offers online counselling services for residents with mobility challenges. Teams of Social Work Counselling Services staff, undergraduate and graduate students, interns, and Widener faculty fulfil a variety of social and behavioural health service gaps in Chester and provide more than 1,000 counselling hours to clients annually.

Widener Community Nursing Clinic opened its doors to serve the under-supported and uninsured in Chester and the surrounding community in October 2011. Partnering with City Team International (where the clinic is held), the clinic is open two days a week for two and a half hours each day. The clinic is staffed by volunteer nurse practitioners and registered nurses, many of whom are Widener alumni. In addition, student nurses, both undergraduate and graduate, also volunteer at the clinic. The services include: health screening, physical exams, health maintenance, primary care, psychological counselling and patient education. In addition, the clinic offers other programmes such as smoking cessation programmes, exercise programmes and special condition classes (like diabetes education) throughout the year. The clinic is funded mainly by individual donations, fundraisers (organised by undergraduate students) and some corporate grants that have been awarded. The funding purchases medical equipment, medication and laboratory studies that the patient cannot afford. Satisfaction surveys that are completed by some of the clients show evidence that they are satisfied with the services they are receiving. The Clinic has served more than 500 patients since its opening. A Nursing Clinic Advisory Board of community leaders has been established to help guide the policies and programmes of the clinic.

Widener’s Institute for Physical Therapy Education opened the Chester Community Physical Therapy Clinic (the Clinic) in 2009 to provide services to Chester residents who do not have access to other physical therapy care. It is a student-run clinic. The Clinic partners with community health clinics and local physical therapy practices to complement their services by reaching out to under-represented individuals.

The Widener Center for Violence Prevention, launched in 2009, includes more than 40 community partners to prevent violence in the community. Its goal is to improve the effectiveness of violence prevention efforts by facilitating collaboration between agencies and providing supportive resources. Services offered include: an online database, asset mapping of violence prevention resources, consultation in programme development, grant writing, evaluation and training. The Center is supported by Widener University’s Center for Social Work Education and the US Department of Justice. Monthly collaborative meetings are held with partners and smaller workgroups to address specific issues/areas of service.

In a partnership with local residents, Widener launched a charter school spanning kindergarten through fifth grade and now serving more than 400 students; it was the first university-sponsored charter school in Pennsylvania. The School of Human Service Professions coordinated strategic outreach with local organisations and parents to elicit feedback and disseminate information. Interdisciplinary teams of Widener faculty members and graduate students in Education, Social Work, Clinical Psychology, Physical Therapy and Nursing work with the children and their families on an ongoing basis. Additionally, Widener convened the presidents of the five local higher education institutions to discuss how they might work collaboratively to improve primary and secondary education in Chester. The result was the creation of the Chester Higher Education Council, which includes a very diverse group of institutions, and coordinates a series of initiatives aimed at improving college access.

Faculty development is considered key to transforming teaching and learning around the service mission. The Academic Service-Learning Faculty Development Programme, started in 2004, has provided an opportunity through a series of seminars for more than 85 faculty members (or fellows) to develop or enhance courses that employ service learning. Fellows are provided with a stipend in addition to their salary. More than 80 service learning courses have been taught by these faculty members to more than 3,000 students. Approximately 60 community partners have worked with faculty fellows to provide service learning experiences for students.

**Distinctive features of the innovation**

Widener is distinctive in the extent to which a civic engagement mission permeates the University, manifesting itself in volunteerism, service learning and strong relationships with community partners around educating students and providing services to these organisations. Although Widener does not have any formal mechanisms for

113 [https://widenerpartnershipcharterschool.org/](https://widenerpartnershipcharterschool.org/)
114 [http://serve.widener.edu/pages/pages/5](http://serve.widener.edu/pages/pages/5)
community input into their service learning courses, individual faculty members work closely with their community partners as they plan the service learning component of the course. Additionally, the larger partnerships described above have an impact on teaching and research in the relevant departments and the student learning through their experiences in these initiatives.

**Funding for the innovation**

The civic engagement initiative was launched largely with institutional funding. There are now several endowed initiatives related to the civic learning mission:

1. Visiting Fellows are distinguished experts in their field and spend time at Widener and make recommendations to the University;
2. Faculty Research Fellows pursue a research project in cooperation with a community partner;
3. Undergraduate Community-Based Research Support for faculty members to advance undergraduate research through innovative Chester-focused research projects that address issues identified in collaboration with a community partner;
4. Student Engagement Mini Grants: awards ranging from $500 to $1,000 (with total annual funding not to exceed $2,500) are made annually to support undergraduate student-led Chester-focused projects developed in collaboration with a Chester community partner to meet community needs.

**Embedding the innovation**

On the community side, there was distrust of the University, given its isolation in previous years. On the institutional side, there was no history of strategic planning or of faculty engagement in the planning efforts that did exist. There were no long-term plans in place when President Harris arrived. Many were sceptical of Widener’s ability to transform itself or to successfully take on the tough issues of the community. The university now sees itself as a ‘metropolitan university and is an ‘anchor institution’ for the City of Chester. The Civic Engagement Committee is a standing committee of the board of trustees, and the Office for Community Engagement and Diversity Initiatives, reporting directly to the president, coordinates the engagement activities and serves as liaison to the board committee. Widener also institutionalised the engagement agenda through the establishment of the President's Community Advisory Board, which includes members of community organisations, public and private civic and faith-based groups, and governmental and business organisations. The Advisory Board also provides input for service-learning courses.

Optional service learning courses are offered in departments throughout the university, and faculty members from different disciplines are engaged in community partnerships and in the faculty fellows programme.

**Impact and success of the innovation**

The Academic Service Learning Faculty Development Programme (ASLFDP), initiated in 2004, has been evaluated. A total of 52 faculty members have participated, representing all disciplines and all six colleges on the Chester campus. The format of the programme has evolved since its inception, and since 2009, it has consisted of a series of seminars for faculty. The focus of the seminars is on the development or enhancement of a service-learning course. Since Spring 2005, more than 80 different service learning courses have been taught by the faculty fellows. Some have been taught only once, others are offered on a regular basis. At the end of each seminar series, participating faculty complete a survey about the quality of the programme, anticipated challenges in teaching service learning, support needed by faculty, and changes in their perceptions about service learning. Faculty were positive about the experience and credited the programme with deepening their understanding of service learning and ability to use it effectively in their teaching. Faculty Fellows are also interviewed by the seminar leaders two years after starting the programme. Faculty reported generally positive experiences with teaching service learning courses. Faculty evaluation of the seminars is ongoing.

There has been limited evaluation on the impact of service learning on student learning. For three years, a survey was administered to all students enrolled in a service learning course. The data were analysed for the 290 students enrolled during 2011-12; in that year, it included scales on diversity, socially responsible leadership, civic attitude, social justice attitudes, knowledge and skills, civic engagement, and interpersonal engagement. Students improved their problem-solving skills (i.e., ability to find solutions), social justice attitudes (i.e., understanding of inequalities), their perception of value of diversity on self-understanding and personal growth, citizenship (i.e., belief that one must actively serve the environments and communities to which they are connected), and community engagement (i.e., sense of connectedness to the community) from the beginning to the end of the semester.
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Context

IT Sligo was created in 1970 as a regional technical college. It is located in a rural and isolated area, with relatively low employment opportunities.

Current facts and figures:

- 5534 students
- 93% are undergraduates
- 15% mature students
- 5% with disabilities
- 250 EU students
- 27% are flexible learners (part-time, online, distance)
- 250 online students are international.

Following the economic crisis, the policy priorities in Ireland include:

- Economic renewal and development at national and regional levels
- Social cohesion, cultural development and equity at national and regional levels
- Public sector reform towards greater effectiveness and efficiency
- Restoration of Ireland’s international reputation (DES 2013).

IT Sligo is responding to these priorities via the innovation described below. Its work had been in development prior to the crisis.

IT Sligo had a reputation in the 1980s for outreach and a limited offering through traditional distance methods (handbooks, weekends, etc.). As school leaver numbers grew in the ’90s, the part time/distance cohort decreased both in actual numbers and as a percentage of the total student cohort. In 2001, IT Sligo was over reliant on traditional school leavers from the region and decided to change the student mix and recruit more part-time and mature learners. Furthermore, support participation and access to higher education for both school leavers and adult learners was a priority for all Irish Institutes of Technology. Because of its rural location and limited market, IT Sligo had to come up with alternate models of delivery.

IT Sligo aimed to meet the needs of students in a flexible way and not on the technology needed to do that. Off-the-shelf software such as Moodle® and Adobe Connect® was adopted as the delivery platform. The technology was secondary as it was a ‘hearts and minds’ job first, requiring a focus on changing the organisational culture. It also wanted to shift to flexible delivery for large cohorts of students from inter alia single companies which required the re-engineering of some internal systems particularly around the handling of registration and fees. The net result was that part-time/flexible student numbers went from 200 to 1,500 and fee income from about 200,000 to 6m EUR over 10 years which includes 4m EUR of non-exchequer income.

Following the economic crisis, IT Sligo has also strengthened its collaborative partnerships through its Centre for Online Learning (COL). COL is the first contact point with industry; it brings industry’s demands for training and
courses to the relevant academic structures for a deeper discussion. There are several pathways for interaction with industry, including the national ‘Enterprise Ireland’ and the regional ‘Project Crest’ initiative. Project Crest has brought small and medium-sized enterprises (SMEs) closer to one another and to the academic community, with clear benefits to students (industry internships, updating modules, student projects, etc.).

**Description of the innovation**

IT Sligo provides flexible delivery, through part-time provision and recognition of prior learning (RPL) and, most notably, through online learning, developed in partnership with companies based in the region and beyond: e.g., Allergan, GSK Stiefel, Irish Prison Service, MSD (Cork) and CSL (Australia).

To achieve success in online delivery, several innovative uses were introduced such as online laboratories. Remote proctoring was introduced as a pilot in 2012-13, when the online BSc in Construction Management included 25 students who were based in 10 different countries across six different time zones. To overcome this challenge, the Centre for Online Learning proposed a pilot project to facilitate overseas-based students sitting their final exams at their place of work or home via online proctoring. This is done with the help of cameras that film every student and the analysis of keyboard strokes. The proposal was accepted by the Institute’s Education and Quality Manager and the Examinations Secretary and was approved by the then Registrar.

The following examples illustrate how IT Sligo meets its engagement with society through bespoke online courses and blended learning:

1. **Bespoke online courses for industry:** Stiefel GSK, a company located in Sligo, was threatened by closure by its new parent company. This was averted when IT Sligo developed a Level 7 BSc in Pharmaceutical Science, in partnership with local Stiefel GSK management. This was delivered online and customised to up-skill the plant operators. The course was validated within three months and available for delivery in four months. IT Sligo recruited a new staff member with specific expertise in the area. So impressed were GSK Corporate management with this development that they decided to overturn the decision to close the Sligo facility. Furthermore, based on the success of the online BSc. course, GSK Corp. decided to extend this educational up-skilling course to 12 of its international facilities worldwide. The IT Sligo remote proctoring of exams facility has been a very significant factor in enabling these GSK students to take their exams in situ.

2. **Partnerships:** Another example of a game-changer in addressing the industry upskilling needs is the NIBRT/IT Sligo partnership providing training for the emerging Biopharma industry in Ireland since the mid-2000s.

3. **Blended learning for the public sector:** IT Sligo won a contract to deliver a higher certificate, higher education level programme of learning to new officers recruited to the Irish Prison Service. This was in response to a national concern that the existing course for prison officers was not meeting the needs of a modern and effective prison service. The Custodial Care course content included all new and purpose-designed modules developed in collaboration with staff from the Irish Prison Service; the final course was validated through the nationally approved new course validation process. As the course was for trainee officers located some 125 miles from Sligo, delivery was through blended learning, combining face-to-face teaching and distance learning. One of the challenges to overcome was for the academic staff of the Department of Humanities to learn how to deliver a blended-learning course. As the course was for trainee officers located some 125 miles from Sligo, delivery was through blended learning, combining face-to-face teaching and distance learning. One of the challenges to overcome was for the academic staff of the Department of Humanities to learn how to deliver a blended-learning course. Prison Officers with higher qualifications (at Masters and PhD level) also participated in the delivery and assessment, as members of the Programme Academic Board. This enhanced the level of practical and professional teaching. The Academic Council of IT Sligo had overall responsibility for the course validation and academic integrity. The course was delivered over four semesters, with a new intake twice each year. Over a period of five years, 700 prison officer trainees were brought through the course.

**Distinctive features of the innovation**

IT Sligo is a socially engaged, commercially savvy, rural institution with an international reach. Collaboration with industry is worldwide rather than simply regional. In addition, IT Sligo cooperates with other higher education

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116 http://thecrestproject.com/
117 https://www.youtube.com/watch?v=NOqsHkw33U
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providers in the delivery of online courses and on staff training in online delivery techniques (e.g. Athlone IT, National University of Ireland, Galway, University of Ulster).

The approach taken of meeting the needs of employees – not only in the design of the course content but also in the flexible and interactive mode of delivery – has resulted in much greater accessibility to higher education for employees who otherwise could not avail themselves of this opportunity to up-skill. This model also allows students to go into employment knowing that they can upgrade their qualifications in the workplace. They may now undertake a Higher Certificate (L6) or Degree (L7) and can continue this to Honours degree (L8) or Masters (L9) while in the workplace.

Large multinational companies wanted bespoke, online courses to meet their specific educational needs while facilitating ease of access by their employees.

These courses had financial benefits in bringing non-exchequer income to the Institute. In addition, being able to meet such demands served to build confidence in the capacity of IT Sligo to respond; it changed attitudes about learners’ needs among academic staff who now recognise that learners on the same course may have significantly different educational profiles.

**Drivers for the innovation**

IT Sligo president took the lead in ensuring the viability and financial support of this strategic initiative and buy-in by the Institute (more on this below). The initial driver was from lecturers and the head of department in the Department of Mechanical and Electronic Engineering. The strategy was to allow the initiative to develop incrementally though programme boards.

While this initiative was strategically planned and supported, many problems were solved as they arose. Business processes were substantially re-engineered to make it work. Examples of specific changes in these include:

1. in-house development of an online course application process;
2. development of a formal business-case process for new bespoke courses;
3. outsourcing the services of a call-centre to handle applicant inquiries (in a timely and professional manner suitable for companies and those in the workforce);
4. development of a formal process for the recognition of prior learning;
5. introduction of remote proctoring of exams in order to facilitate students located across the world. Every programme is separately validated academically through the Academic Council.

**Funding for the innovation**

There were no external funds put into the online operations and the development of the systems and approaches were managed from internal core resources of the Institute.

These changes were managed as a business: all steps taken were done in a business-like model (e.g. calls for tenders, justifying all costs, etc.). There was a strong commercial focus, particularly when working with companies.

**Barriers to implementation**

1. One set of barriers was the internal administrative processes and changing them from processes that handled one student at a time to a service model that is business orientated and can process blocks of learners from one company at a time (e.g., for registration and payments or adjusting the firewall to allow access to online library resources from outside the institution). The prior educational profile of learners also required procedures to be developed for the recognition of a range of prior academic and experiential learning components. Reorganising the administrative processes required leadership as well as changing the culture.
2. Buy-in from academic staff was achieved in the following way:
   a. Staff were given some time to learn how to develop online delivery and adapt existing courses. The model was based on minimising the staff skills requirement – that was the key to the quick uptake/growth.
   b. IT Sligo offers training for academic staff on its Moodle platform. It is not hugely attended and it is difficult to make this training an obligation. Rather, an annual seminar on new emerging techniques (i.e., a peer-to-peer approach) contributes to developing a community of practice. Informal training works best. IT Sligo creates opportunities for staff to meet and learn from other
more experienced staff. It has been found that providing training just before going online is effective.

c. In order to convince staff that this is an effective way of teaching, IT Sligo allowed the initiative to grow organically. The momentum was supported by management and was driven by academic staff who wanted to reach learners who could not access their courses; some courses were also undersubscribed which provided added incentives to move toward a new form of delivery.

d. Development started in Engineering and spread to the Sciences. A national research and development centre in biotechnology (NIBRT) with pharmaceutical staff located at the other end of the country required training. This gave the opportunity for the School of Science in Sligo to develop online learning. Most successful in the Humanities was the use of blended-learning delivery mechanisms that was convenient for, and respectful of, the needs of the Irish Prison Service.

e. As a consequence, many of the permanent academic staff developed skills in blended-delivery techniques, which are now applied on a routine basis in other courses.

3. Another challenge is the appropriate allocation of teacher workload for online delivery – i.e. how many hours does it take to teach the same module online vs. face-to-face? How to take into account the greater number of students in online delivery? In addition, learners from industry expect 24/7 answers to their emails. The response was to recalculate workloads (as being dependent on enrolment figures) and to acknowledge the benefits of online delivery for academic staff who can arrange their time more flexibly, and work from home.

4. A fourth challenge was to provide the technical infrastructure (e.g., multiple screens for ease of preparation of online lectures, the need for teaching booths to deliver online classes, specific technology such as electronic white boards, graphic tablets to facilitate interactive teaching, cameras, broadband, specialised software, etc.). Students also have to be equipped with the necessary software and have good broadband access. Proposals to acquire new technology require the Executive Committee and Academic Council’s approval based on robust financial and academic proposals. The Online Learning Centre (three staff) is responsible for monitoring delivery, managing the relationships with the companies, making sure that the courses are delivered, etc. These costs are covered by fee income.

In short, the initiative was demand-driven and led through staff initiatives, with senior management support. Peer mentoring developed it further as well as persuading staff of the societal benefits in providing a gateway to learners who otherwise would not have had access to higher education.

Embedding the innovation

The development started with the School of Engineering. The School was already delivering part-time courses, but one specific course could not find any takers locally while demands for the course in other areas of Ireland went unmet. Out of this need, the first online course (in Quality Engineering) was developed. The Institute learned from this and developed its capacity to respond more flexibly across a number of disciplines to the educational needs of industry. It is now at the forefront of online delivery in Ireland.

This initiative is now an integral component of IT Sligo’s profile. Staff members understand that this activity is a unique asset and are proud of being identified with it, whether they are directly participating in such activities or not.

As part of this, a lesson learned is that it is important to ensure clarity of understanding about the meaning of the words used (remote, online learning, blended learning, etc. hold different meanings for staff) and to let each discipline decide the mode of delivery best suited to particular courses for particular cohorts of learners.

The cultural change required to respond to new learners’ needs was driven from the centre. Each School, however, responded differently: Engineering chose a fully online model to suit a variety of remote learners; Humanities and Business chose an off-campus (outreach), blended approach to suit learning at introductory level; Science targeted large bespoke company training, delivering in-company and online training in partnership with other providers.

The initiative grew organically and was driven by demand and peer example. The technical infrastructure grew with the scale of activities. The process started slowly and the support system was developed over time (usually based on the demand of front-line lecturing staff). Improvements were introduced based on experience of previous online course delivery and the arrival of new technological enhancements and facilities. A dedicated, centralised unit such as COL with staff who have experience in online delivery has been a key success factor for other organisations seeking to emulate this process.
Impact and success of the innovation

There is no unique assessment that measures impact. An internal quality assurance process reviews every course (this is being implemented and needs further development and evaluation). Student evaluations are collected and IT Sligo is evaluated by the national quality assurance agency. One advantage of using online tools is that students can be surveyed quickly and routinely in respect of the progress of their learning on any particular module. This can also be used to monitor student attendance.

The metrics used are essentially student numbers, volume of income generated, and customer satisfaction (e.g. employer comments and demand for further progression courses). Up to 2015 there have been matching parallel increases in student numbers and fee income.

References


General references

Note: References and articles that are specific to a case study are given at the end of each case.


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