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Innovation in the Master of Environmental Management (MEM) teaching program

School of Humanities and Languages, FASS

Project Team

Project Leader: Matthew Kearnes: m.kearnes@unsw.edu.au

Project Leadership team: Paul Brown, Matthew Kearnes, Daniel Robinson, Tema Milstein

Course Developers and teachers: Rosalie Chapple, Suzanne Schibeci, Tema Milstein, John Carr, John Merson, Paul Twomey, Aaron Magner, Jennifer Kent, Paul Munro, Marilu Melo, Nahid Sultana, Paul Brown, Matthew Kearnes, Daniel Robinson, Tema Milstein

Pedagogy Advisers: Wendy Meyers, John Shannahan, Colin Salter, Cath Ellis, Lisa Ford, Stephen Doherty, Jessica Pracy and Anna Rutkowska

Faculty Technical Team: Natalie Gelche, Kristjoe Fuertes, Simon Trevaks

Report lead author: Paul Brown: Email: paul.brown@unsw.edu.au Phone: 0414385570
Executive Summary

School of Humanities and Languages, which hosts the Master of Environmental Management (MEM), received SEIF funding over two years, to allow development of MEM courses, in particular to enhance the capabilities for on-line and blended delivery. Achievements and impacts range across six areas of activity, as originally proposed:

New Practices for digital education integrated across all MEM courses
- We have re-conceptualized the MEM as a 'hub' for students' independent research that relates to their courses, their interests and their specific assignments. The research emerges in blogs, articles, reports and web material, available amongst all other resources at various levels of 'publication'.
- We have developed the 'flipped' approach, equalising the experience of distance and on-campus students; with the same on-line resources for both modes and tailored interactive tasks for each.
- We have given new focus to 'place-based' learning – revitalising field work within the MEM and redesigning assessment tasks to be integrated with field activities and independent research that are supported by new on-line repositories of case study material.

MEM individual courses re-development:
- We engaged instructional designers and educational advisers to assist individual course co-ordinators in tailored course development.
- We have made significant improvements, including conceptual design for on-line teaching and advanced interactivity across all core and fundamental knowledge courses, as well as some electives, within the MEM; and we are implementing these in 2019-20.

Short Courses with Micro-credentials
- We have developed our two intensive Summer courses with possible transition to short courses in mind, and with enhanced on-line content.

PLuS Alliance shared teaching and engagement:
- Our Project Leader has been appointed as a PLuS Alliance Fellow 2019-20.
- This facilitates on-going negotiation about joint offerings from the three universities.

National Standards alignment:
- The MEM is in most respects compliant with new National Standards for Environment and Sustainability learning and teaching. But we need to improve the integration of indigenous knowledge and indigenous perspectives.
- We have enhanced the amount of indigenous content in several courses and begun specific protocols work for knowledge exchange related to particular places, eg. Blue Mountains World Heritage Area.
- We have planned a NUW Alliance project that would allow for L&T protocols to be established with indigenous communities across the Sydney Basin, to the benefit of those communities and the MEM program.
- If successful in future funding requests, this NUW initiative is an important spin-off from our SEIF project.

Reporting and open sharing of outcomes:
- We presented on MEM developments and place-based independent learning for the international conference of the US Association for the Advancement of Sustainability in Higher Education 2018.
- We presented a paper for the UNSW Learning and Teaching Forum 2019.
- We have made other presentations at school level as a means of sharing outcomes with other programs.
- Faculty ADE has also reported progress at a high-level forum.
- We have planned several papers for publication in the field of environment and sustainability in higher education.

Overall, the development of field-based activities and growth in capacity for on-line learning and teaching have proved to be mutually reinforcing. This SEIF project has seeded significant opportunity for independent place-based learning in a degree focused on students’ capacity for critical thinking and leadership in the realm of environmental decision making and management.
1. Outcomes and impact


1.1 Major achievements of the project in relation to the outcomes and deliverables.

The SEIF project has helped to consolidate a ‘community of practice’ that includes pedagogy advisers, full time and casual staff, and students. Initially our focus was on exploring and piloting course development initiatives in core MEM courses. In the second half of 2018 we expanded this and implemented an ongoing ‘production schedule’ for new modules and on-line elements, with focus on fundamental knowledge courses and selected electives. This was supported by a curriculum mapping exercise, the development of new online resources including a ‘Place Based Resource Kit’, and by advanced uses of the Moodle platform. The learnings from this now guide developments in other courses in preparation for 2019 and beyond, consistent with new term structure. Also in development is reflective publication in the field of sustainability in higher education.

More details:

A. Digital delivery integrated with critical thinking
   – optimizing the experience of both distance and face to face students, through new practices for digital education integrated across all MEM courses
   - Focus has been on integration of on-line materials and assessments with classroom and on-line forums, and with field study that includes independent place based learning.
   - On-line teaching experts Colin Salter and John Shanahan assisted individual course co-ordinators.
   - We piloted a new ‘flipped’ approach in several courses as a means of equalizing the experience of on campus and distance students.
   - We have continued to develop plans and strategies for new course development across the MEM, to be rolled out in 2019-20.

B. Selected re-development of individual courses
   – responding to recent reviews, benchmarking, resource constraints and student surveys while addressing UNSW L&T priorities and the new term structure.
   - Trials of new on-line approaches in core courses and fundamental knowledge courses.
   - Significant improvements in Moodle sites for these courses... towards a template for the MEM.
   - Planning for and implementation of new developments in field-based learning across several of our courses.

C. Engagement with external community and industry
   – contributing to capabilities in communities; engaging external professionals in the teaching program; developing employment opportunities for graduates.
   - Negotiations with industry, NGO and government partners under way, with a view to establishing our new steering group.
   - Plans in development for co-production of new on-line modules and support materials, especially versatile case studies.
   - Focus on how our external partners can assist with ‘short half life’ teaching elements – responding to the fast changing field that is environmental management.
   - Initiation of an NUW Alliance project linking community knowledge makers and university teaching programs

D. Packaging of short non-award courses (potentially with micro-credentials)
   – to articulate with the degree program.
   - We have been watching the development of campus-wide initiatives (via the Short Course Advisory Group); and in 2018-19 we continued our discussion of possible short course and/or micro-credentials.
   - We continue to explore short course possibilities with industry, government and NGO partners.
   - We have developed our two intensive Summer courses with possible transition to short courses in mind, and with enhanced on-line content.
E. International linkage
– to develop international links, in particular (though not exclusively) with UNSW PLuS Alliance universities
  • We continue to assess the potential for teaching collaborations with other PLuS Alliance universities. This is assisted by our Project Leader's appointment as a PLuS Alliance Fellow.
  • recent initiatives include development of teaching exchange with the University of the South Pacific.

F. Alignment with new National Standards for Environment and Sustainability learning and teaching.
– to analyse, and compare the MEM with, the Learning and Teaching outcomes specified in the new National Standards for Environment and Sustainability teaching, issued by the Australian Council of Environmental Deans and Directors in 2014.
  • MEM courses are well aligned to these LTOs, with one important exception: our less than adequate inclusion of (Australian) indigenous perspectives.
  • We need to develop threads, modules and potentially a whole course on First Peoples and the Environment, in collaboration with Nura Gili and external partners.
  • We can publicise our alignment with the National Standards as part of improved advocacy and promotion for the MEM.

Addendum: List of On-Line developments
The initiatives below have been initiated or fully implemented within the duration of the SEIF project. Some require further development across 2020. Also see UNSW L&T Forum presentation for further detail.
• Blended modules (equalizing distance and face-to-face teaching)
• Amplification via on-line forums
• Using the pods: interactivity in the classroom
• Virtual attendance
• Enhanced recording of short-half-life seminars
• Filmed long-half-life master classes and lectures
• Enhanced on-line quizzing, posters, and other assessment techniques
• Guided on-line skills development (Life Cycle Analysis, Geographic Information Systems)
• A new on-line module on the use of statistics and analytical techniques, portable across several courses
• An on-line Place Based Resource Kit – supporting assignments and field work across the MEM
• A revised Protected Area Management course with only field and on-line elements
• Enhanced use of LEGANTO for independent research and resource repository
• Filmed field encounters
• A Webisode Matrix – using The Box to store and access teaching videos

1.2 Project impact
Below is a summary of how our project has addressed UNSW strategic priorities, with analysis of the benefits for courses, programs and students. Please also refer to outcomes and impacts summarised in Section 2 below in abstracts for conference and journal papers.

A. UNSW 2025 Strategy:
The university-wide strategy designates Priority A2 Educational Excellence through the Scientia Educational Experience, giving focus to "Being Digital"; with the objective of enhancing personalised and flexible education within a program.
Comment:
• A key dimension of this SEIF project has been the development and integration of digital education approaches throughout the MEM core, fundamental knowledge and elective courses.

B. SEIF Strategic Priorities:
Two SEIF priorities have been addressed: The first is to allow UNSW to significantly increase the efficiency of a course or program. The second is to allow UNSW to expand its offerings to new students.
Comments:
• Digital education practices have been integrated throughout the MEM curriculum. Efficiencies arise from the production of ‘long half life’ teaching materials and also protocols and principles of curriculum development with long term implications. This potentially allows modules of fast changing content to be updated more regularly and at lower cost in future iterations –this is vital for an environmental masters degree to remain ‘cutting edge’.
• Developments via the SEIF project help underwrite new student recruitment, especially in South Asia and Latin America. For example, greater use of digital teaching approaches and the integration of field study with on-line support material allows new emphasis on distance education, and also encourages international students to experience significant field activities within their degree.
• Enhanced on-line capability also underwrites greater flexibility for students to establish their pathways through the MEM, including a combination of on-campus and distance learning, making the degree more attractive for both domestic and international students.

C. Other Specific Benefits:
As the set of innovations are rolled out, assessed and re-developed, we anticipate specific benefits to the MEM program, for students, and for UNSW.
• The project has helped the program's community of practice to re-imagine the degree as learning and teaching that is built on student independent research, with a 'communications hub' that assembles and disseminates on-line materials and enhances networking for staff and students.
• Importantly, developments driven by the SEIF project come at a time when the MEM is gaining new focus as a Leadership program, and in this context the findings of the SEIF project are being taken up in 2020 via the MEM Convenor, program teaching staff and an interim program facilitator role established within the School of Humanities and Languages.
• For staff in the MEM program, including casual staff, the SEIF project has been a catalyst for all to improve our own technological skills. For example, it has created better understanding and use of the capabilities of the Leganto system and it has enabled both staff and students to significantly enhance use of Moodle's advanced capabilities.
• The SEIF project has brought new insights for wider developments in the MEM, such as the tasking of a new external advisory group, enhanced guidance for prospective students, and student recruitment strategies.
• Through dissemination and publication from the project, UNSW is producing new knowledge about digital education practice and blended learning approaches. In the longer term this will also accrue through shared expertise and understandings based on student feedback.
• The MEM program can more convincingly market its on-line capability, and the linkage between place-based independent learning and on-line resources and assessments. The benefit comes in the form of larger student numbers and therefore revenue.

For further exploration of benefits, please see Section 3 Evaluation below.

2. Dissemination strategies and outputs

Dissemination strategies include scholarly publication, conference and forum presentations at international level and within UNSW. Outputs are, or will be:

A. Conferences and Forums
• We presented on MEM developments and place-based independent learning for the international conference of the US Association for the Advancement of Sustainability in Higher Education, Pittsburgh 2018. The paper was prepared by Paul Brown and Jennifer Kent, and delivered via video-link.
• We presented a paper for the UNSW Learning and Teaching Forum 2019, titled Leadership, Place-Based Independent Learning and On-Line Development in the Master of Environmental Management. UNSW staff can now access all presentation slides and recordings from the Forum on the UNSW Learning and Teaching Forum Moodle course site (self-enrolment key: Inforum).
• We have made several other presentations at for the School of Humanities and Languages, and FASS ADE has also reported progress at a high-level forum.
B. Proposed Publications arising from the SEIF project

Two co-authored publications in preparation. The most likely publisher is the International Journal for Sustainability in Higher Education, which has previously taken papers on climate change learning and teaching at UNSW.

**Publication #1: Challenges of interdisciplinary for on-line teaching in an environmental masters program**

Short Abstract: Staff and students in the Masters of Environmental Management at University of New South Wales Australia have developed new approaches to blended learning using on-line materials and peer instruction in both the classroom and on-line forums. The paper examines how the Sustainable Development Goals can frame learning and teaching at postgraduate level, and it explores pedagogical principles and learning outcomes that embrace ecological sustainability, inter-disciplinarity, adaptive management, systems thinking and ethical commitments.

**Publication #2: Place-based independent research in a sustainability masters program**

Short Abstract: Courses in the Master of Environmental Management at UNSW include field activities and interactive case studies that combine virtual and real-world experiential learning at critical sites of contention, including protected areas, urban and industrial sites, and remote area communities. Distance (including international) students adapt the approach for sites they can readily access. For example, in the ‘capstone’ course for the degree, students visit a place they know and/or that is close to where they live or work. They take photographs, record sounds, and write observations. They independently explore on-line the events, history, controversies, significance, cultural meaning and social construction of that place (with focus on human-nature relationship and environmental issues). Their ‘place’ is a site in which to ‘ground’ concepts introduced across the course; their study is supported via curated on-line resource materials. This leads to a variety of (assessable) outcomes, e.g. blogs, case study presentations, opinion essays, major assignments. There is a correlation between the success of field work and the increased use of on-line support materials.

3. Evaluation of project outcomes

Image: Field course Blue Mountains. Photo: Rosalie Chapple

As originally proposed, the Evaluation Strategy for this project has been the READ model (Note 1) which integrates **Reflection, Evaluation, Analysis and Documentation** to provide a comprehensive picture of what was achieved, and to produce findings, reports and promotional material.

In applying the READ model, the starting point was an agreed set of criteria (decided through consultation within the community of practice) for assessing elements of the project, and an agreed form and content of reporting. The process of setting evaluation criteria was also a tactic for network and relationship building. Alongside the specific aims and objectives of the SEIF project (See section 1 above), members expressed the need to:

- Respond to student feedback and program analysis, in particular to use on-line developments to address disparity in educational outcomes for distance and on-campus students, and issues of communication faced by international students.
- Develop strategies for integrating on-line education with field study.
- Enshrine principles and broad educational objectives within MEM courses, aiming in particular to enhance capabilities for leadership, critical thinking and independent problem solving.

Reflection and Evaluation

A series of workshops and roundtables provided opportunities for reflection on progress, and the time and space to develop shared understanding of pedagogy. In addition, key-informant interviews with members of the community of practice have provided insights into achievements and impacts (Note 2). Reflections from staff Daniel Robinson and Matthew Kearnes and Casual teachers Paul Brown and Rosalie Chapple include:

- SEIF has allowed us to employ first of all John Shanahan and Colin Salter as advisors and also Wendy Meyers as a faculty-based education advisor and as an individual course advisor. I had all that advice that I could turn to. PB
- I think the SEIF project really brought us all together to talk about pedagogy issues because most of the staff that we’ve had were casual and they’d come in and chat and then we’d never see them again. We were all able to meet up and share with each other. RC
- And that’s important as we will always have casual teachers, we want people from outside to come in and be a part of the MEM. I think the SEIF project has allowed us to get a ‘college’ of casual teachers and we’ve been systematically involved in the development. PB
- I think we have been more brave about the integration of technology in the classroom and with supporting students, whether they’re on campus or international. Whereas originally I think I saw myself splitting things – students on campus were doing things completely different than those online. DR
- The SEIF project has been a catalyst for us all in improving our own technological skills. PB
- The workshops that we held were really helpful ... We could critically think about what we were teaching and how we could teach it. It also gave us opportunities to really get everyone together and work as a team brainstorming how we could fix the issues within the courses. RC
- There were plenty of differences between international and campus students – the distance students had less engagement and lower marks than on-campus students. I find that they were Isolated. SEIF allowed us to engage with these students on a similar level of campus students. DR
- Now that face to face students do the same online work you can say to the class “it doesn’t matter if you’re face to face or distance, you’re all doing the same activity”. PB
- We have had a couple of ‘pedagogical breakthroughs’. We have come to the conclusion so that we are able to introduce more fieldwork through our on-line resource kit. The mutual reinforcement of on-line work and field work may seem counter intuitive, but it’s one of the most important outcomes of the SEIF project. PB
- I think having the place-based resource kit will allow me to teach the ‘realities’ of these places. DR
- I have been able to make changes in the “Addressing Environmental Issues” course by implementing more fieldwork. This requires students to individual independent research and I don’t think I would have been able to think about that without having conversations with those who are already well versed with that type of learning. I feel able to introduce students’ own knowledge into my own courses. PB
- SEIF enabled me to develop my short course, that is a six-day course – including a field trip. And to adapt it so it was more available for distance students as well as on campus students. I developed the online content and I modularised the course into four distinct modules to make it easier for the students to work to it. RC
- The SEIF project helped me explore different courses, other than my own, and made me assess myself as an individual teacher. MK
- Regular development should be built into the schedule, not for it to happen only we get a grant. RC

Continuing Evaluation

Collation of student responses to MEM courses remains a current project, which will assess the benefits and issues arising following the SEIF project. Further details are available on request.

Analysis and documentation

Members of the project team are collaborating as authors on presentations and scholarly publications (See Section 2 above.) The Moodle sites and course outlines for our courses in themselves document developments with on-line presentation and integration of on-line resources with classroom and field work. Developments will also be documented as rationales and explanation of pedagogy within the ‘AIMS’ system.

Note 2. Researcher Jessica Pracy was the interviewer for the reflections by staff and casual teachers.