

Final Project Report

**Building academic
staff capacity for using
eSimulations in professional
education for experience
transfer**

2010

**Lead institution
Deakin University**

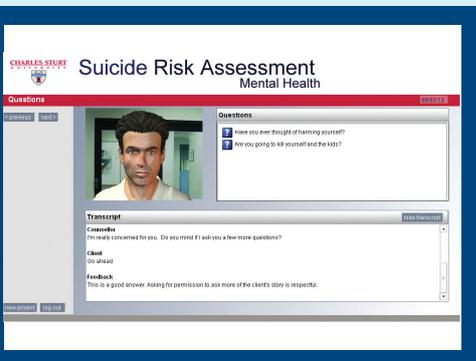
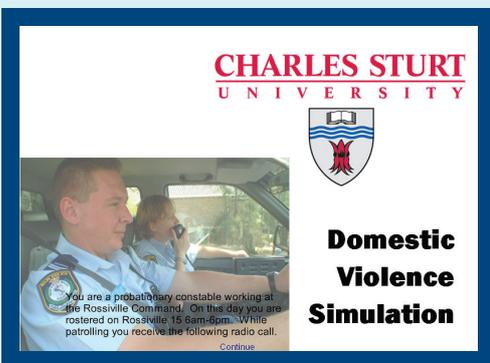
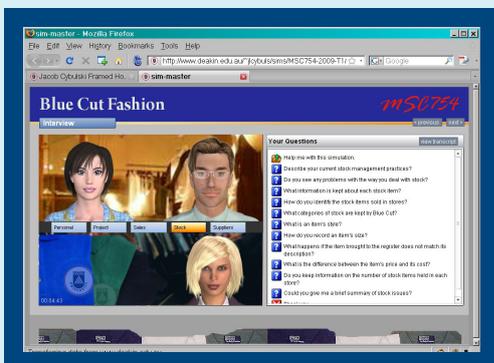
**Project leader
Associate Professor Jacob Cybulski**

**Project team
Deakin University**
Associate Professor Jacob Cybulski
Dr Dale Holt
Mr Stephen Segrave
Mr David O'Brien
Ms Judy Munro

RMIT University
Professor Brian Corbitt
Professor Ross Smith
Dr Martin Dick
Mr Ian Searle
Dr Hossein Zadeh
Dr Pradipta Sarkar

Charles Sturt University
Professor Mike Keppell
Ms Deb Murdoch
Professor Ben Bradley

www.deakin.edu.au/itl/insims/altc-project/index.php



Support for this project has been provided by the Australian Learning and Teaching Council, an initiative of the Australian Government Department of Education, Employment and Workplace Relations. The views expressed in this report do not necessarily reflect the views of the Australian Learning and Teaching Council Ltd.

This work is published under the terms of the Creative Commons Attribution-Noncommercial-ShareAlike 2.5 Australia Licence. Under this Licence you are free to copy, distribute, display and perform the work and to make derivative works.

Attribution: *You must attribute the work to the original authors and include the following statement: Support for the original work was provided by the Australian Learning and Teaching Council Ltd, an initiative of the Australian Government Department of Education, Employment and Workplace Relations.*

Noncommercial: *You may not use this work for commercial purposes.*

Share Alike: *If you alter, transform, or build on this work, you may distribute the resulting work only under a licence identical to this one.*

For any reuse or distribution, you must make clear to others the licence terms of this work. Any of these conditions can be waived if you get permission from the copyright holder.

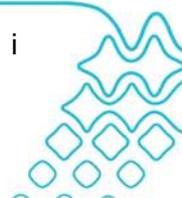
To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-sa/2.5/au/> or send a letter to Creative Commons, 171 Second St, Suite 300, San Francisco, California, 94105, USA.

Requests and inquiries concerning these rights should be addressed to the Australian Learning and Teaching Council, PO Box 2375, Strawberry Hills NSW 2012 or through the website: <http://www.altc.edu.au>.

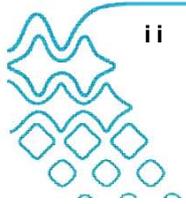
2010

Table of Contents

1. Acknowledgements.....	1
The project team	2
2. Executive summary.....	3
Recommendations	4
3. Introduction	6
4. Project rationale	8
5. Project objectives.....	10
6. Project outcomes	12
Outcome 1 – Literature reviews.....	12
Outcome 2 – eSimulations covering a range of professions	12
Outcome 3 – eSimulations run throughout the project	13
Outcome 4 – Training and ongoing knowledge transfer discussions	14
Outcome 5 – eSimulations developed during the project.....	15
Outcome 6 – a student eSimulation evaluation survey instrument	17
Outcome 7 – a book in preparation	17
7. Approach and methodology.....	19
8. Use and advance of existing knowledge	22
9. Selected factors influencing project outcomes	24
Success factors.....	24
Inhibiting factors.....	25
10. Implementation of project outcomes.....	26
11. Dissemination	27
Project website.....	27
Publications.....	27
Project posters and eSimulation portfolio	28
Conferences attended during the project.....	29
12. Linkages.....	31
13. Evaluations	33
Formative project evaluation.....	33
Student eSimulation evaluation	33
Knowledge transfer experience evaluation.....	36
Information Technology Services Division (ITSD) technical evaluation	38
Independent audit	38
eSimulation design evaluation	38
Summary of evaluation experiences.....	38
14. Reference list.....	39
Appendix A: Student eSimulation evaluation survey instrument.....	41
Appendix B: Possible redesigned student eSimulation evaluation survey questions	45
Appendix C: Knowledge transfer and eSimulation development experience capture instrument	47
Appendix D: Editorial Advisory Board of the book in preparation	51
Appendix E: Structure of the book in preparation.....	52
Appendix F: Deakin University's eSimulation program (DeakinSims 2001–2010)	54
Appendix G: Student eSimulation evaluation responses	57



Appendix H: Phenomenological study of the blog entries	68
Appendix I: Reference group	73
Appendix J: Independent audit report	74

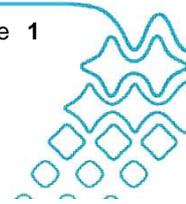


1. Acknowledgements

The project team would sincerely like to thank the many people without whose support, expert advice, knowledge and participation this project would not have achieved the level of success it has.

We would particularly like to acknowledge the significant contributions made by the following people and organisations:

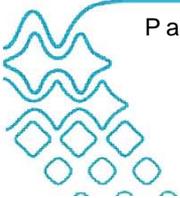
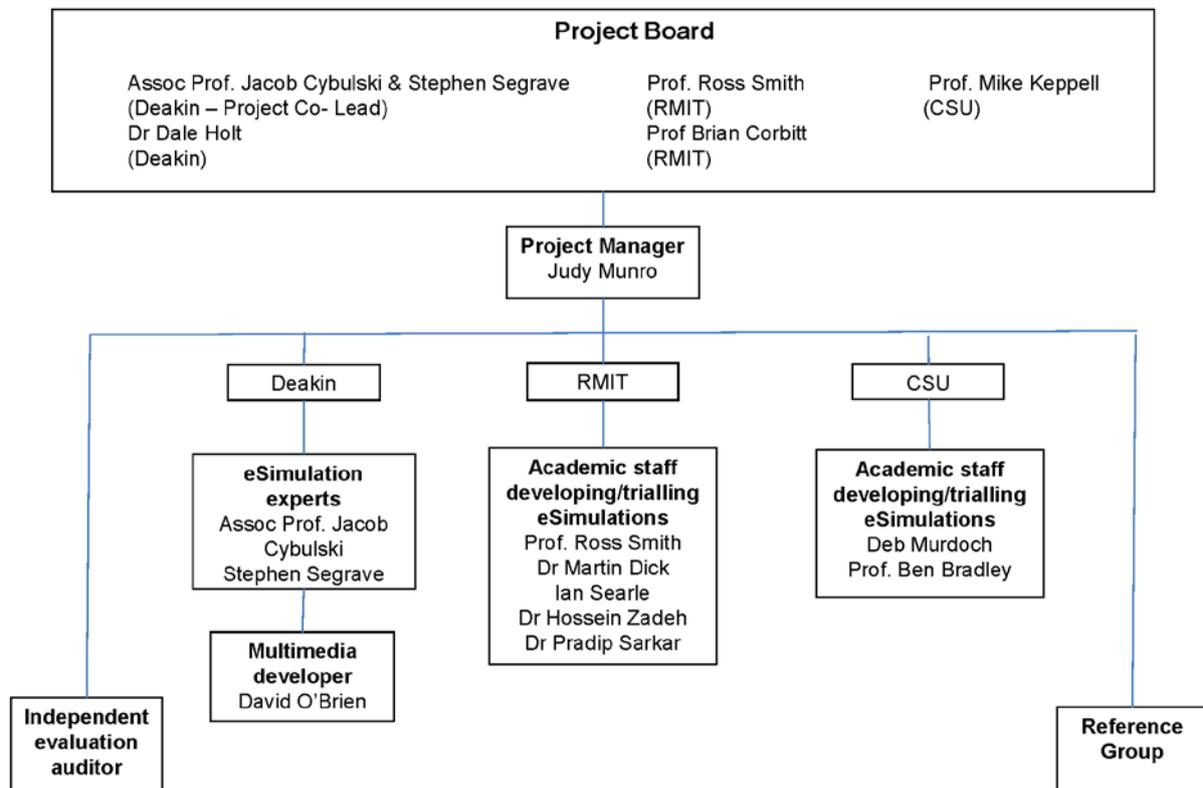
- The Australian Learning and Teaching Council (ALTC) for providing project funding.
- The project partner institutions: Deakin University, RMIT University and Charles Sturt University.
- Students who participated in the eSimulation Student Surveys.
- Deakin academics Dr Mike Kerry, Associate Professor Julie Cassidy and Dr Belinda Guadagno for surveying their students using eSimulations and allowing the project to use their data.
- Dr Di Challis, Challis Consulting, for performing the independent audit.
- Ms Tina Bray, Deakin University, for processing project finances.
- Ms Lois McDonald, RMIT University, for arranging rooms and conference facilities.
- Ms Tracey Brighton, Deakin University, for assisting with and publishing the project website.
- The members of the reference group for their inputs throughout the project:
 - Dr Cathy Gunn
Ex President, Australasian Society for Computers in Learning in Tertiary Education (ASCILITE)
University of Auckland
 - Professor David Murphy
President, Open and Distance Learning Association of Australasia
Director, Centre for the Advancement of Learning & Teaching, Monash University
 - Associate Professor Piet Kommers
Faculty of Behavioral Sciences, University of Twente, The Netherlands
 - Ian Dennis
President Australian Computer Society Victoria
Chairman of the Centre for Innovative Industry Economic Research Inc.
 - Stas Lukaitis
Executive committee member, Australian Computer Society, Victoria
Chair, Branch Professional Development, Australian Computer Society, Victoria
Senior lecturer, business information technology & Logistics, RMIT University
 - Dr Deborah Bunker
Discipline of business information systems
Faculty of Economics and Business, University of Sydney
- Ms Mary Rice for performing a literature review and producing a journal article on the evaluation of eSimulations.
- Staff from Knowledge Media Division who assisted with graphic design and production of project posters, and the editing and production coordination of the final report and guide.
- Australian Consortium for Social and Political Research Inc (ACSPRI) for performing analysis on the first wave of student survey responses.
- Dr Scott Salzman, Deakin University, for redesigning the student survey tool
- Professor Colin Mason, Director, Institute of Teaching and Learning, Deakin University, for contributing to Sections 9 and 10 of the Guide.
- Ms Arlene Silvas, Director, Knowledge Media Division, Deakin University, for contributing to Sections 9 and 10 of the Guide.
- Dr Lemai Nguyen for her contribution to teaching Deakin units that used our eSimulation and her work on several publications that describe our experience in using eSimulations.



The project team



From left to right: Ross Smith, Stephen Segrave, Dale Holt, Judy Munro, Ian Searle, David O'Brien, Pradipta Sarkar, Hossein Zadeh, Martin Dick, Deb Murdoch, Jacob Cybulski (Absent: Brian Corbitt, Mike Keppell, Ben Bradley)



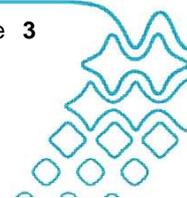
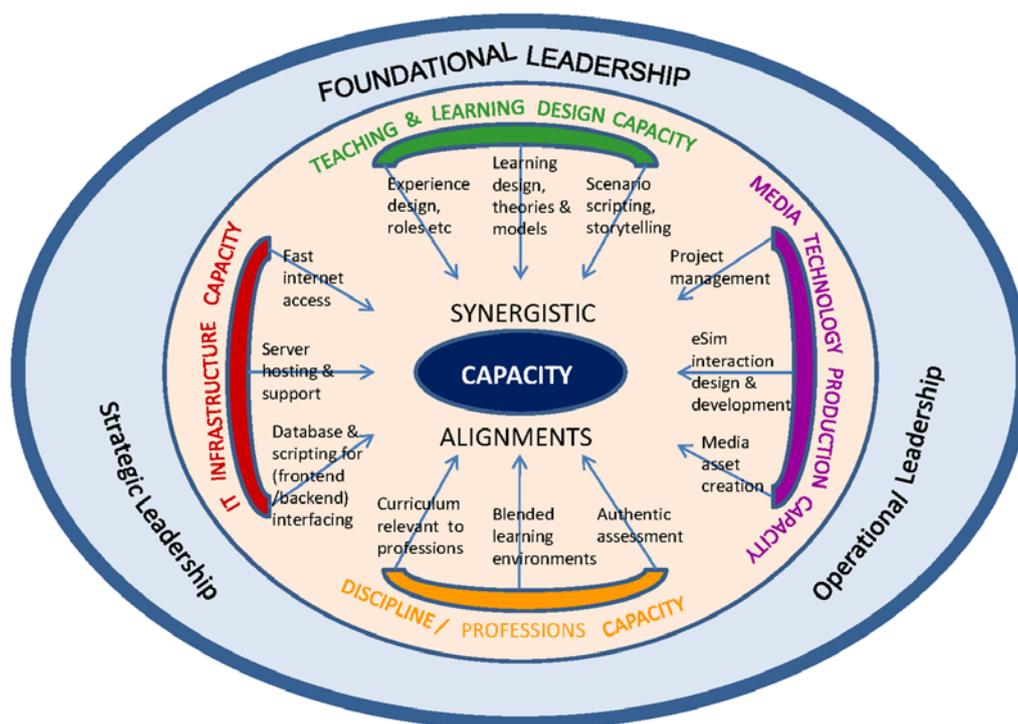
2. Executive summary

The project aimed to transfer knowledge and build organisational capacity to develop, deliver and evaluate digital simulations (eSimulations) to enhance professional learning in the Australian higher education sector. Knowledge was initially transferred from the lead institution, Deakin University, to the partner universities, RMIT University and Charles Sturt University (CSU), to achieve this aim. The project revealed both the potential and limits of knowledge transfer to build organisational capacity in the partner institutions. Over time knowledge was in turn transferred from the partner universities to the lead institution. The project's action research and action learning approach led to the creation of the eSimulations Original Capacity Building Framework (see Figure 1).

The eSimulations Organisational Capacity Building Framework

Knowledge transfer and organisational capacity building is a multi-dimensional, complex process. It requires well articulated strategic and operational leadership, well developed capacities in teaching/learning design, IT infrastructure, media technology production, and discipline/professional expertise, all well aligned to create synergistic value. Leadership must balance the need to nurture such innovation gradually to maturity against the ever-present temptation to accelerate mainstreaming of developments to achieve economies of scale. The former serves well the interests of academic teachers and support staff who generate the developmental momentum; the latter can quickly disempower them and be counter-productive to institutional interests. These capacities were nurtured in the project through the development of a broader range of eSimulations relevant to the local contexts of partner institutions. The diffusion process was therefore judged a success with different eSimulations developed in the different organisational settings. Each organisational context now has capacities to allow ongoing development and usage of the technology. The limits of diffusion were also revealed with lead institution knowledge only able to be transferred so far in other partner contexts before major local adaptations were required.

Figure 1: Capacity building framework



Allied to the development of the capacity building framework was the project's second major outcome of constructing:

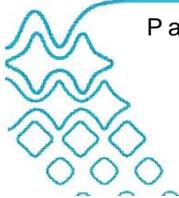
A guide to designing, developing, using and evaluating eSimulations for professional learning in Australian higher education

The project's third major outcome was the:

Development of a national and international network of leading scholars and practitioners in eSimulations in higher education

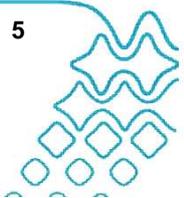
Recommendations

1. Institutions wishing to pursue eSimulations need to ensure:
 - Strategic leadership incorporates such developments into their overall vision and action plans relating to curriculum renewal, experiential and workplace learning, and blended and flexible education directions. eSimulations will not be strategically supported if they are seen as merely another e-learning technology to be added to an institution's portfolio of systems, tools and applications. They must contribute to university-wide teaching and learning commitments and directions, and associated measurements of performance.
 - Operational leadership has well developed expertise (in-house or externally sourced, or both) in the four key functional areas of teaching/learning design, IT infrastructure, media technology production, and discipline/professional expertise, and that these are well aligned through workable structures and cross-functional collaboration and support.
2. Given the diversity of perspectives on conceiving and doing learning design of simulated environments for professional learning generated through the project, further investigation is required of learning design theory and practices in a range of ALTC projects completed or in progress which deal with online-supported role-based simulations and three-dimensional virtual learning environments.
3. The ALTC and the sector needs to give greater consideration to the ways in which research and evaluation capacities can be developed, and the results disseminated, in relation to the impacts and effects of online enabled simulated environments on learning and teaching in higher education. Given the dispersed nature of expertise and developments across various institutions and disciplines, this requires some form of inter-institutional networking arrangement, involving a range of stakeholders in the education of the professions.
4. Further investigations are required to assess and develop authoring tools and methodologies for assisting academic teaching staff to better conceive and develop eSimulations cost-effectively in a broader range of professional fields.
5. Further investigations are required to ascertain better practices in situating eSimulations in relation to the use of other e-learning technologies and face-to-face teaching/learning environments. Beyond the challenge of designing eSimulations, eSimulations must be designed astutely in relation to the changing design challenges of blended, distance and flexible education.



The underlying 'engine' of the eSim is the state transition table. This is already a fairly complex concept to fully appreciate and even more difficult to effectively program. It seems to me that there would be fertile ground for research into developing easy to use front ends for its programming such as an interactive graphical engine that would draw together all the necessary parameters for its use, including the audio-visual manipulations. Given that 'talking heads' is just one presentation layer it occurred to me that any audio-visual presentation such as animated cartoons, drawing objects, graphic elements would likewise be suitable. This could lead to simulations such as computer network simulations, database design simulations and even router and firewall simulations.

Stas Lukaitis
Reference Group Member

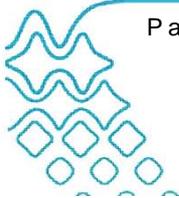


3. Introduction

Digital simulations (eSimulations) are seen globally as a major area of development in e-learning, blended learning and flexible education (Aldrich, 2004; Bonk & Zhang, 2008; Bonk, 2009). Moreover, their potential can be directly related to workforce training and in educating for the professions. Simulations have a long history in these areas, and digital role-based simulations are adding further value in the area of internet learning. The ALTC and its predecessors have invested very substantially in various types of educational technologies for the benefit of the sector. However, eSimulations for professional learning had not received significant attention from the ALTC or other sponsors setting trends for the innovative use of new technologies in Australian higher education until the advent of this project. This project addresses this gap, aligning educational, technical and evaluation strengths of Deakin University, RMIT University and Charles Sturt University (CSU) to build academic and professional staff capacities for the 'local' development and use of an already successful approach to simulating 'professional experiences' for student learning.

The project aimed to expand the range of eSimulations for student learning of professional experience in three partner institutions using the prior knowledge and experience of the lead institution, Deakin University. This was not to be achieved through the direct transfer of completed eSimulation 'products' from the lead institution to the partner institutions. A capacity building approach was therefore strongly favoured over a product-centric one (Corbitt, Holt, & Segrave, 2008). The project's goal was to achieve the expansion of eSimulations through enabling knowledge transfer and organisational capacity building. This process of diffusion was enabled through the project's commitment to action research and action learning. One of the project's key outcomes is a framework for organisational capacity building for eSimulations development. This framework is seen to be transferable to other institutional contexts, along with various guidance and support provided in the project's resources (see the Guide and project website).

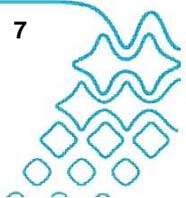
The report shows how the project's objectives were achieved through the project approach and methodology, which in turn led to a set of project outcomes and key deliverables. Moreover, a consideration of these key outcomes and deliverables has led to the presentation of five key recommendations back to the ALTC and sector. We argue these recommendations are pertinent to the consideration of any major educational technology innovation and mainstreaming activity in the sector.



My comments relate to e-learning capacity building in general rather than specifically to eSimulations. I believe these insights apply to all innovative and technology supported teaching strategies. They are not in order of importance.

1. The development tools have to be very easy to use, or development teams have to be readily available to support beginning users.
2. The educational value has to be obvious. Using examples and presenting evidence of what has been achieved to show people what it is and how it works is a powerful strategy.
3. Evidence of impact on student learning needs to be collected and shared. It should also be used to refine / modify or further develop resources and to inform the learning design of course environments and activities the e-learning resources are used in. Published results speak loudest in academic environments.
4. Tangible support from senior people within an institution reflects the importance of any initiative. This might come in the form of dedicated funding, 'championing', awards or other means of recognition.
5. The institutional culture needs to encourage risk taking and innovation.

Dr Cathy Gunn
Reference Group Member



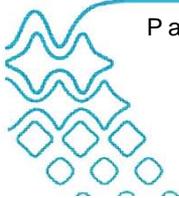
4. Project rationale

From 2000–2008 Deakin University committed strategic funding to successive eSimulation projects to support academic staff to create highly valued and successful curriculum resources that facilitate learning of professional skills in the university setting (Cassidy, 2008; Demetrious, 2007; Segrave, 2003a; Segrave, 2003b; Segrave & Holt, 2003). While professional skill development and professional experience transfer are routinely sought by educational institutions via work experience programs, Deakin University sought to extend the strategy using eSimulations that situate learners in ‘authentic’ e-learning environments providing innovative and valid teaching and assessment that is seamlessly interwoven in the process of skill acquisition and experience transfer (Cybulski, Parker & Segrave, 2006 a&b). One of the major benefits of the eSimulations is that they enable university students to be introduced to, and rehearse skills essential for real world practice before they are placed in the actual professional practice setting.

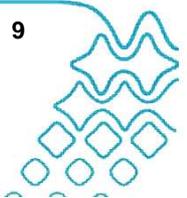
Emerging approaches to eSimulations have the potential to address various issues in regard to learning subtle or complex professional skills normally learned from direct experience, as well as facilitating the dissemination of good teaching practices easily adopted by academic staff. However, a persistent wide-spread preoccupation with technology ‘products’ and their promotion tends to shape academic teachers’ conservative, if not negative views of innovative educational technologies, leading to constrained thinking about larger pedagogical possibilities (Corbitt, Holt & Segrave, 2008). Rather than being liberated to generate new curriculum and pedagogies, teachers can be burdened by a product-centric approach involving the ‘importing’ of packaged innovation. Our project proposal confronted this obstacle to the dissemination of quality teaching using innovative eSimulation technology.

After national awards success and the successful launch of the HOTcopy© website in 2003, for example, it is not surprising that Deakin University’s local approach to disseminating eSimulations during the period 2004–2008, focussed on staff ‘capacity-building’ instead of on a technology adoption approach. Capacity-building transforms the role of the academic teacher and identifies key areas of potential teaching and learning benefit. Academic teachers’ agency, their sense of being in control and being able to change things based on their own values, needs and locally informed experience, is critical to the achievement of more enduring teaching and learning benefits (Segrave, Holt & Farmer, 2005). This is only made ‘possible’ by new e-learning technologies if matched by teacher readiness and capacity.

Having achieved in Deakin University a capacity to effectively build and use eSimulations across multiple faculties and multiple professions (By 2008 examples include: law, forensic psychology, public relations, financial planning, business information systems), we aimed to reconceptualise the eSimulations agenda to further impact professional practice in other university settings across Australia. A reframed agenda marshalling distributed interests, goals and capabilities of a wider community of university staff would create a nationally recognised profile of excellence in eSimulations for professional education.



A preferred and promising approach for the wider dissemination of educational 'experience' lies in fostering communities of practice, such as one proposed in this joint project between universities: Deakin, RMIT and CSU. This project promoted the strategic development of staff capabilities and innovative e-learning resources in a well seeded community of practice spanning three very different universities. Using their specific strengths to disseminate a new approach to flexible education in the professions via digital simulations, we aimed to disseminate benefit to the Australian higher education sector more generally through the ALTC.



5. Project objectives

Digital simulations (eSimulations) for student learning of professional experience and the dissemination of successful eSimulations for sector-wide improvements to flexible learning had yet to receive attention from the ALTC or other sponsors setting trends for the innovative use of new technologies in Australian higher education.

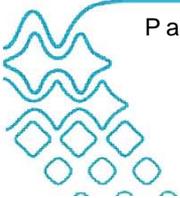
The objectives of the project were to:

1. facilitate the 'transfer' of professional experience (in the real world) to student learning experiences in a university setting via an expanded range of types of eSimulations
2. facilitate student learning experiences in a university setting via eSimulations to encourage the 'transfer' of learned professional experience and capabilities to the real world
3. develop capacities across three universities in the development and use of eSimulations through the use of action research and action learning approaches and to share capacity building approaches between themselves and with the rest of the sector
4. build capacities in the development and use of eSimulations created locally for university academic and professional staff to facilitate real-work learning experiences
5. evaluate the dissemination of eSimulations in three universities for the successful transfer of professional experience
6. use this partnership for propagating a national community of practice in eSimulations and extend this through the ALTC.

The three institutions collaborated on this project because of the specific expert contributions they were able to bring to it. Most notably, these contributions included:

- **Deakin University (Deakin)**
 - Providing education design, development and production capabilities and models for delivering the proven live simulation (LiveSim) form of eSimulations.
 - Providing the current LiveSim architecture and the first three reusable simulation shells/templates:
 - real-time professional office interactions
 - professional consultant interviewing of live video clients
 - professional consultant interviewing of clients simulated via controllable conversational avatars.

Providing an existing suite of eight re-usable eSimulations in business and law (accounting, finance, business information systems, company law), psychology (professional practice, forensic psychology interviewing);, communication arts (journalism and public relations).



- **Charles Sturt University (CSU)**
 - Providing expertise in creating and re-using contemporary and flexible 'learning designs', hence trialling modified eSimulations from collaborating universities.
 - Providing expertise in the design and implementation of 'blended learning' to ensure the integration of eSimulations in curriculum and pedagogical practices.
 - Providing expertise in evaluation design, specifically for technology-based learning programs.
 - Providing expertise in action research as applied to the dissemination of educational technologies and related professional development.

- **RMIT University (RMIT)**
 - Providing a shared discipline focus in business information systems and a strong interest in computer-based systems, and in developing and disseminating eSimulations.
 - Providing the ability to develop re-purposed eSimulation shells and re-using existing eSimulations.
 - Providing expertise in systems analysis and design to improve the current LiveSim approach, particularly in relation to rapid authoring by academic teaching staff who are novice creators of eSimulations.
 - Providing expertise in software engineering.
 - Providing expertise in trialling and evaluating the technical designs of eSimulations using closely managed computer infrastructure.
 - Providing expertise specifically in the action research of education technologies.

The unique organisational structures, resources, staff and student constituencies at the three participating universities, and the resultant differences in professional learning cultures made this a particularly productive and valuable partnership.



6. Project outcomes

Seven project outcomes have addressed all six project objectives. The project outcomes are aligned with the project objectives as follows:

Outcome 1 – Literature reviews

Two literature reviews were produced:

- eSimulations for enhancing teaching and learning;
- Capacity building and knowledge transfer.

These can be viewed at our project website:

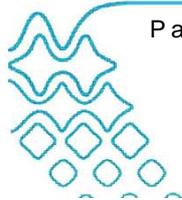
<http://www.deakin.edu.au/itl/insims/altc-project/dissemination.php>

Objective 1 – Facilitating the ‘transfer’ of professional experience (in the real world) to student learning experiences in a university setting via an expanded range of types of eSimulations

Outcome 2 – eSimulations covering a range of professions

As a result of eSimulations developed by Deakin and the partner institutions (outlined in Outcome 5 below) and via the use of a number of existing Deakin eSimulations being further utilised during the project, the eSimulations covered a range of professions as follows:

eSimulation	University/Faculty/School	Professional skill focus
Blue Cut Fashion (Store)	Deakin University, Business and Law, Information Systems	Business Analysis, first year students (individual project)
Blue Cut Fashion (Chain)	Deakin University, Business and Law, Information Systems	Requirements Engineering, Masters level students (team work)
Ringo Robotics PhamaTech	RMIT University, Business Information Technology and Logistics	Project Management
Suicide Risk Assessment	Charles Sturt University, Arts, Humanities and Social Sciences	Interviewing / Counselling
Purple Integrated Taxi System (PITS)	RMIT University, Business Information Technology and Logistics	Systems Analysis and Design
Domestic Violence Simulation	Charles Sturt University Arts, Policing Studies	Domestic violence police response procedures
Know Your Client	Deakin University, Business and Law	Financial Planning



eSimulation	University/Faculty/School	Professional skill focus
ClientView	Deakin University, Business and Law	Taxation Law
UnReal Interviewing	Deakin University, Health, Medicine, Nursing and Behavioural Sciences	Forensic Interviewing of a Child

Objective 2 – Facilitating student learning experiences in a university setting via eSimulations to encourage the ‘transfer’ of learned professional experience and capabilities to the real world

Outcome 3 – eSimulations run throughout the project

2009 eSimulations

Trimester / Semester 1

- Know Your Client – Deakin
- Blue Cut Fashion (Store) – Deakin
- Blue Cut Fashion (Chain) – Deakin
- Ringo Robotics – RMIT
- Suicide Risk Assessment – CSU

Trimester / Semester 2

- ClientView – Deakin
- Blue Cut Fashion (Chain) – RMIT
- Ringo Robotics – RMIT
- Purple Integrated Taxi System – RMIT
- Suicide Risk Assessment – CSU

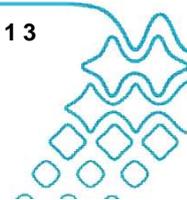
Trimester / Semester 3

- Blue Cut Fashion (Store) – Deakin
- UnReal Interviewing – Deakin
- Domestic Violence Simulation – CSU

2010 eSimulations

Trimester / Semester 1

- Blue Cut Fashion (Store) – Deakin
- Suicide Risk Assessment – CSU
- PhamaTech – RMIT



Objective 3 – Developing capacities in the development and use of eSimulations through the use of action research and action learning approaches and sharing capacity building approaches between partner institutions and with the rest of the sector

Outcome 4 – Training and ongoing knowledge transfer discussions

1. Training sessions

Deakin University conducted training sessions for RMIT and CSU in November 2008 to transfer eSimulation development knowledge and assisted with determining the technical infrastructure to be used at each partner institution and its implementation. Support via the telephone was also provided.

2. Regular team meetings to share issues/insights/solutions

Following the initial eSimulation development training sessions, regular fortnightly team meetings were convened which gave team members the opportunity to discuss with the lead university, Deakin, and amongst themselves, firstly development issues/insights/solutions and then issues/methods of teaching using their eSimulations.

3. Project conference

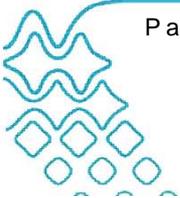
In November 2009, a project conference was conducted. The first day was for the team to discuss key findings of the project and to share their issues and experiences in the knowledge transfer and eSimulation development arena. These sessions were videoed and the dialogue transcribed, as can be found on our project website: <http://www-dev.deakin.edu.au/itl/insims/altc-project/evaluation.php>. The second day saw a presentation to a wider Deakin University audience showcasing the eSimulations developed and the project findings to date.

4. Data collection instrument for knowledge transfer and eSimulation development experiences

In April 2010, a Knowledge Transfer and eSimulation Development Experience Capture Instrument (via Opinio software) was developed and used with team members to formally collect their experiences with knowledge transfer and eSimulation development. This instrument is reported in Appendix C. A phenomenological study was conducted on the team members' responses. See Section 13 Evaluation.

5. *A guide to designing, developing, using and evaluating eSimulations for professional learning in Australian higher education*

A guide has been developed to provide an understanding of what may be needed to develop eSimulations and to use them within a blended learning environment. The project has detailed various elements and activities in the form of a guide to assist educational designers and academics to undertake eSimulation development.



The guide is structured around:

- organisational capacity building
- conceiving and enabling knowledge transfer
- guidance on how to teach with eSimulations
- guidance on the development and production of eSimulations
- guidance on setting up the technical infrastructure
- guidance on evaluating eSimulations
- development of a national and international network of experts via the preparation of a book.

Objective 4 – Building capacities in the development and use of eSimulations created locally for university academic and professional staff to facilitate real-work learning experiences

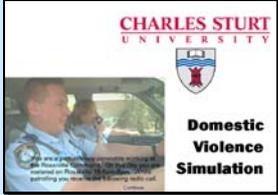
Outcome 5 – eSimulations developed during the project

Deakin, as the lead university, provided assistance with setting up the technical infrastructure, training and support on the design and development of eSimulations and guidance on the use of the eSimulations within a blended learning environment.

The following eSimulations were developed during the project by Deakin and its partner institutions:

eSimulation	University Faculty/School	Status	Evaluated	Future
Blue Cut Fashion (store) Business analysis, first year students (individual project)	Deakin University, Business and Law, Information Systems	Run in 2009	✓ 	Continued use with modified case studies. Running in 2010
Blue Cut Fashion (chain) Requirements engineering, masters level students (team work)	Deakin University, Business and Law, Information Systems	Run in 2009	✓ 	Continued use with modified case studies. Running in 2010
		Adapted to run at RMIT University, Business Information Technology and Logistics in 2009	X (insignificant response rate)	Continued use with modified case studies. Running in 2010



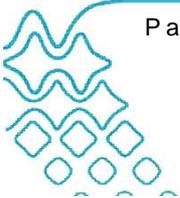
eSimulation	University Faculty/School	Status	Evaluated	Future
Ringo Robotics Project Management	RMIT University, Business Information Technology and Logistics	Run in 2009	✓	Continued use with modified case studies.
				
Suicide Risk Assessment interviewing / counselling	CSU Arts, Humanities and Social Sciences	Run in 2009	✓	Continued use with modified case studies. Running in 2010
				
Purple Integrated Taxi System (PITS) Systems analysis and design	RMIT, Business Information Technology and Logistics	Run 2009	✓	Continued use with modified case studies. Future plans include an expansion to a suite of scenarios.
				
Domestic Violence Simulation Domestic violence police response procedures	CSU Arts, Policing Studies	Run 2009	✓	Continued use. Running in 2010. Future plans include an expansion to a further 5 scenarios.
				

Brochures detailing the development strategies and the use of each of these eSimulations can be viewed at our project website:

<http://www.deakin.edu.au/itl/insims/altc-project/dissemination.php>

Using the Ringo Robotics eSimulation as a template, RMIT have also developed an additional eSimulation as follows:

eSimulation	University Faculty/School	Status	Evaluated	Future
PhamaTech Project management	RMIT, Business Information Technology and Logistics	Running in 2010		Continued use with modified case studies.
				



Objective 5 – Evaluating the dissemination of eSimulations for the successful transfer of professional experience

Outcome 6 – a student eSimulation evaluation survey instrument

A Student eSimulation Evaluation Survey Instrument (via Opinio software) was used to collect students' opinions and experiences of using the eSimulation immediately after the eSimulation was completed in each unit/module. The survey instrument is reported in Appendix A.

The results of the student responses collected are detailed in Section 13 – Evaluations.

The survey was critiqued (see Section 13 – Evaluations) and as a result of recommendations, was redesigned for future use. The redesigned Student eSimulation Evaluation Survey Instrument is reported in Appendix B.

Objective 6 – A national and international network of leading scholars and practitioners in eSimulations in higher education

Outcome 7 – a book in preparation

A book, in preparation, titled *Professional Education Using eSimulations: Benefits of Blended Learning Design*, is due to be delivered to IGI Global by no later than January 15, 2011 with a proposed publication of early 2011.

The book is a major academic output of the project and has served as a vehicle for nurturing and capturing the value of national and international relationships with interested parties, and as a stimulus to developing new relationships. It has made a contribution to developing a sense of community or at least network of interested parties in the sector, regionally and further afield

The editors of the book are Dr Dale Holt, Associate Professor Jacob Cybulski and Stephen Segrave. The book will have chapters contributed by various national and international experts in the field. A synopsis of the book follows.

Synopsis

Role-based digital simulations for education in the professions are the primary focus of this book. It delivers theories, models, cases, benefits and future directions for innovations in eSimulations. A striking theme in the book will be how a range of disciplines across a range of institutions conceptualise their learning designs for blended learning environments, and have built the necessary capacities for developing and delivering their own eSimulation frameworks.

In theorising the nature and context of role-based simulations, section one of the book will examine the contemporary foundations for instructional and learning design of eSimulations for new generations of learners. Authentic learning designs for gaining professional skills require careful attention to the components of suitable blended learning environments.



The application of eSimulations to education in a range of professions will be explored in section two, where the fields include arts, sciences and business across distinctly different tertiary institutions. The evidence supporting eSimulations will be derived from institutions of different sizes and cultures that serve quite different student cohorts and study contexts.

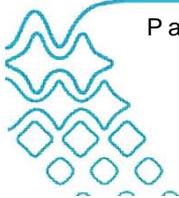
The book will conclude by examining how the education and training sectors can develop the knowledge and capacity to progress the mainstreaming of eSimulations. The process naturally includes the building of local evidence about the impacts of eSimulations on learning, through research and evaluation. Readers will be encouraged to pay closer attention to eSimulations in final chapters dealing with future directions and possibilities.

Appendix D details the members of the Editorial Advisory Board and Appendix E details the structure of the book in preparation.

The eSims project addresses some interesting pedagogical challenges of engaging a student to grapple with a sort of 'real world' experience. Traditionally this would have been done with 'visiting experts' and person-to-person role-playing. This has been shown to be effective in some circumstances and not so effective in others. I might make some observations here...

- a. Realism is important as a factor in 'grabbing' a student's attention. If the realism is absent then the student will treat the simulation with normal cynicism and it will not be any better than an average text book.
- b. Realism has two dimensions in my opinion –
 - i. The 'talking heads' need body language that is an integral part of human-to-human communications.
 - ii. The actual conversation content needs to be realistic, reflecting as well as possible a real-world situation.
- c. For young students engaging with an eSim their sense of realism will be accentuated because the conversation content is novel or unexpected. If that's not the case, then any value from the eSim will be absent.

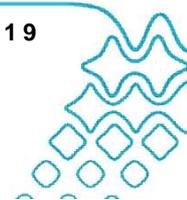
Stas Lukaitis
Reference Group member



7. Approach and methodology

With the intent of enhancing professional practice through eSimulations and capacity building across the three partner universities, a cycle of action learning and action research was conducted, consisting of planning, action, evaluation and reflection (Kember, 2000; Kemmis & McTaggart, 1988; Pedler, 2006; Pedler, Burgoyne & Brook, 2005). Action learning and action research allowed ongoing professional development through action, dialogue and critical reflection. An initial team conference was held at the beginning of the project, the next halfway through the project cycle and the final one near the end of project cycle. Evaluation activity through the cycle and during milestone team conferences focused on learning design review, development and production review, IT infrastructure review, student experience review, research and evaluation review, and organisational capacity building review. The cycle, activities and outcomes are represented in the following table.

Methodology cycle	Activities	Outcomes
Project initiation	Project Conference 1	<ul style="list-style-type: none"> Project Initiation Document (PID) Project Plan Delegation of roles
1. Planning	<ul style="list-style-type: none"> eSimulation training (Deakin) Individual eSimulation design (Deakin, CSU, RMIT) 	Knowledge, ideas, designs
2. Action	<ul style="list-style-type: none"> eSimulation development (Deakin, CSU, RMIT) eSimulation deployment (Deakin, CSU, RMIT) 	Course deployment in a blended learning format
3. Evaluation	<p><i>Formative</i></p> <ul style="list-style-type: none"> Blogs Fortnightly all-of-team meetings Project Conference 2 – team focus group Surveys of student responses Consultation with Reference Group <p><i>Summative</i></p> <ul style="list-style-type: none"> Team member surveys Analysis of surveys and transcripts 	<ul style="list-style-type: none"> Blogs unsuccessful Team meeting minutes recording discussions Audio recording / transcripts of team focus group Student Survey analysis Team response analysis Feedback from Reference Group
4. Reflection	<p><i>Formative</i></p> <ul style="list-style-type: none"> Solution of immediate problems (facilitated by Deakin) Refinement of eSimulations Refinement of the design of application of eSimulations in classroom settings <p><i>Summative</i></p> <ul style="list-style-type: none"> Conference presentations/papers Project Conference 3 Reference Group feedback Final Project Report 	



Methodology cycle	Activities	Outcomes
Project summation / On-going dissemination of results	<ul style="list-style-type: none"> • Project report • Project Guide • Project website • Project posters and eSimulations portfolio • IGI Global text – Professional Education Using eSimulations: Benefits of Blended Learning Design 	

The action research methodology and action learning approach represented the process through which project objectives were achieved through the generation of project activities and outcomes. The methodology and approach also raised major challenges and outstanding issues reflected in the project’s recommendations. The relationships between objectives, outcomes, methodology and recommendations follow:

Foundational knowledge underlying Objectives 1–5 was achieved through:

Outcome 1, involving literature reviews on eSimulations for enhancing teaching and learning and capacity building and knowledge transfer by gradual accumulation, synthesis and sharing of eSimulations scholarship by team members.

Breakdown of achievement of individual objectives

Objective 1 – Facilitating the ‘transfer’ of professional experience (in the real world) to student learning experiences in a university setting via an expanded range of types of eSimulations was achieved through:

Outcome 2 – eSimulations covering a range of professions by the planning and development of eSims in different partner institutions and the sharing and consideration of these developmental challenges (see recommendation 2).

Objective 2 – Facilitating student learning experiences in a university setting via eSimulations to encourage the ‘transfer’ of learned professional experience and capabilities to the real world was achieved through:

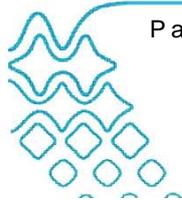
Outcome 3 – eSimulations run throughout the project by the planning of ongoing implementation commitments (see recommendation 5).

Objective 3 – Developing capacities in the development and use of eSimulations through the use of action research and action learning approaches and sharing capacity building approaches between partner institutions and with the rest of the sector was achieved through:

Outcome 4 – Training and ongoing knowledge transfer discussions (see recommendation 4).

Objective 4 – Building capacities in the development and use of eSimulations created locally for university academic and professional staff to facilitate real-work learning experiences was achieved through:

Outcome 5 – eSimulations developed during the project by collaboration action amongst team members and with other local staff in their respective institutions (see recommendation 1).



Objective 5 – Evaluating the dissemination of eSimulations for the successful transfer of professional experience was achieved through:

Outcome 6 – a student eSimulation evaluation survey instrument developed and administered for each eSim offering (see recommendation 3).

Objective 6 – A national and international network of leading scholars and practitioners in eSims in higher education was achieved through:

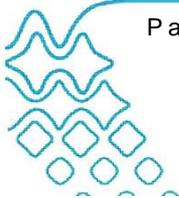
Outcome 7 – a book in preparation in collaboration between team members and other interested parties nationally and internationally (see recommendation 3).



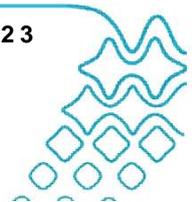
8. Use and advance of existing knowledge

The starting point for this project was to use and then build on Deakin University's eSimulations program (DeakinSims 2001–2010) which includes web-based and 2D simulations, which was the focus of this project (see Appendix F for Deakin's eSimulations program timeline). The project acknowledges the significant investment made by the ALTC through its grants programs in enhancing the use of educational technologies in the sector. Moreover, it acknowledges the work of several ALTC Fellows who have provided a variety of perspectives on designing e-learning, e-assessment and in capturing and sharing ICT-enabled learning designs. The ALTC technology grants have focused on a range of particular e-learning systems, applications and immersive virtual worlds, for example, web-based lecture delivery systems, e-portfolios, online marking and self- and peer-assessment applications, social media and networking, mobile and streaming technologies, 3D virtual environments, and online-supported role-plays. This project was positioned to complement these various investigations by examining the potential of transferring knowledge and building organisational capacity to design, develop and evaluate eSimulations for learning in the professions in the Australian higher education sector. The project acknowledges and contributes to the growing knowledge on effective educational designs for role-based digital simulations, its chosen and distinct specialist focus.

The project acknowledges the efforts of other ALTC projects on educational technology to build networks of scholarly and practice-based expertise throughout the sector and to the institutional level. The project has adopted a distinctive focus in investigating the transfer of knowledge and consequent organisational capacity building through the inter-institutional partnership. It has *not* adopted the view that the best way of diffusing technology innovation through the sector is to facilitate the sharing and adoption of technology products (ie actual systems, applications and tools) amongst institutions. Such strategies may be problematic as 'products' fail to take hold in new and different organisational contexts. A key advance in the dissemination of educational technology innovation has come through the project's focus on knowledge transfer and local capacity building using action research and action learning approaches. The project advances knowledge of these approaches (see guide), including lessons learnt as the project unfolded, and encapsulates the key spheres and forces in the eSimulations organisational capacity building framework. The building of these capacities in partner institutions through the local development and adaptation of the lead institution's eSimulation knowledge accumulated over the best part of a decade has yielded positive results and sustainable local know-how. It has contributed significant knowledge back to the lead institution. This capacity building framework is particularly relevant to strategic and operational leaders and managers. While funded as a technology innovation project under the ALTC Competitive Grants Program, we argue it has integrated constructively with the leadership capacity building objectives of the ALTC's Leadership for Excellence in Learning and Teaching Program. Thus, the synergies with other competitive grant technology innovation projects, and with the concerns of the leadership grants project is a specific knowledge advance delivered through the eSimulations project.



The project has also sought to advance knowledge on the ways of best networking relevant practical, scholarly and theoretical expertise in the field of eSimulations in the education of the professions. The networking efforts in turn are contributing to the drawing out and bringing together of a variety of perspectives on the value and potential of eSimulations for professional learning in the global world of blended, distance and flexible education. It has done this by further developing a number of national and international relationships amongst interested parties across Australia, New Zealand, Europe, Canada and the United States. As a part of this commitment, knowledge has been enhanced on some useful ways of evaluating and researching the impacts of eSimulations on student learning experiences (see Guide). These methodological contributions add to approaches adopted in other ALTC funded educational technology projects. However, we recommend that more investigation is required across the broad range of technology fields to ascertain and build further research capacities in the service of marshalling evidence of impact on learning and teaching experiences. This evidence-based, design-led approach pursued on a much broader scale is a key means of expanding the use of eSimulations and, indeed, any educational technology innovation throughout the mainstream of academic teachers, designers and media producers in the sector. It is also more likely to capture the attention and active involvement of relevant institutional leaders and managers.



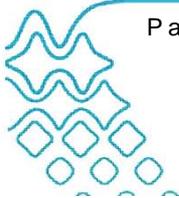
9. Selected factors influencing project outcomes

The project involved a significant number of cross-institutional team members contributing a range of expertise. The project also required leadership distributed amongst the partners to achieve its objectives, with overall project leadership and management emanating from the lead institution, Deakin University. The project dynamic embodied a set of enablers and inhibitors, as is to be expected in any major undertaking of this nature. On balance, the enablers overcame any inhibitors with the project being judged successful in achieving its objectives as evidenced through its list of outcomes (not withstanding some qualifications highlighted in the evaluation processes and to be expected in such a project).

Success factors

The following factors contributed to the success of the project and its completion within the agreed timeline and budget:

- interest and enthusiasm of team members from the three institutions – Deakin (lead), RMIT, and CSU
- continuity of team members throughout the life of the project
- employing a project manager who possessed a sound knowledge of relevant issues and advanced skills in project management, project reporting and budgetary control
- exemplary leadership by the Deakin team members
- the skill and experience mix of team members from the three partner institutions
- regular fortnightly full team meetings with formal agenda and minutes, alternately being run at Deakin and RMIT with the project manager physically in attendance, built and nurtured good working relationships
- regular fortnightly meetings of the Deakin team members to discuss more specific issues revolving around their leadership role
- ongoing reference to a detailed project plan
- having a clear understanding of the contribution which would be made by partner institutions
- clear roles, responsibilities and tasks assigned to each team member
- project conferences where the team met face to face dispersed throughout the project (October 2008, November 2009, June 2010)
- ongoing sharing of information and provision of updates via email
- a supportive team environment
- carefully handling the various ethics applications associated with the project ensuring a shared understanding of these and compliance with all requirements
- good management of the survey evaluation cycles and timelines.



Operationally I thought the project was managed very professionally and that it achieved so much in the face of such inherent difficulty is a testament to its teamwork and management effort. Communications and feedback was excellent.

Stas Lukaitis
Reference Group Member

Inhibiting factors

The project team experienced the following inhibiting factors:

- Academic workload, at times, impacted team members' ability to deliver / complete tasks in the required timeframe.
- As the project developed, the challenges of the technology, in particular the challenges of developing the eSimulations, distracted the participants from undertaking formative evaluation and reflection. As a result of the demands of developing eSimulations for trial, there was a reduction in the use of rigorous evaluation of student experience, which had it been more timely, could have been used to inform the next cycle of eSimulation development and use.
- Timelines for initial Wave 1 quantitative analysis by the external contractor were significantly missed therefore, having a significant impact on the team's ability to put into practice the full power of action learning methodologies



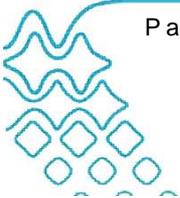
10. Implementation of project outcomes

The project's outcomes, or know-how, has been captured and is being disseminated through its capacity building framework, guide to good practice, and book publishing initiative. The implementation of outcomes through these means is designed to appeal to a broad range of interested parties operating in significant fields of higher education practice, both nationally and internationally.

1. The eSimulation design and development skills imparted by Deakin University have been used successfully across the partner institutions, which it can be argued, are representative of the higher education sector:
 - RMIT University – as a technology-oriented institution, and member of the Australian Technology Network (ATN)
 - Charles Sturt University – a predominantly distance education university, and member of the Open and Distance Learning Association of Australia (ODLAA) Distance Education (DE) Hub
 - the process of knowledge transfer amongst partner institutions has led to the development of an eSimulation organisational capacity building framework transferable to other educational technology developments through the sector.
2. *A guide to designing, developing, using and evaluating eSimulations for professional learning in Australian higher education* has been prepared to provide advice on developing eSimulations and in order to present key findings of the project. The guide aims to meet the needs of various audiences involved in designing, producing, evaluating, researching, leading and managing eSimulation programs.

The guide is structured around:

 - organisational capacity building
 - conceiving and enabling knowledge transfer
 - guidance on how to teach with eSimulations
 - guidance on the development and production of eSimulations
 - guidance on setting up the technical infrastructure
 - guidance on evaluating eSimulations
 - development of a national and international network of experts via the preparation of a book.
3. Through national and international collaboration and networking, members of the project team are editing a collection of contributions on eSimulations in educating the professions in higher education, blended learning environments.



11. Dissemination

The project has adopted a number of channels for disseminating project outcomes (listed below). The project has used a variety of communications media to disseminate findings at key completion milestones. Post project completion, the major stage of the eSimulation book development and publishing will be completed (book due for release in early 2011). The book is a key vehicle for marshalling and circulating knowledge on theorising, designing and implementing eSimulations in higher education. It is a stimulus for ongoing dissemination and work by the project team. The project's recommendations highlight major areas where further investigation, development and dissemination are required.

Project website

A project website has been developed detailing the project management governance, timeline, project outputs, reporting, dissemination and evaluation aspects of the project.

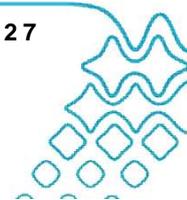
<http://www.deakin.edu.au/itl/insims/altc-project/index.php>

The project website contains substantial primary source relevant to the project objectives, outcomes, methodology and approaches. It is integral to supporting ongoing efforts to disseminate project findings, representing the project's underlying evidential base.

Publications

The following are publications from the project and can be found on our project website: <http://www.deakin.edu.au/itl/insims/altc-project/dissemination.php>.

Publication	Type	Who	When
'Learning to become a creative systems analyst'	Book chapter – the <i>PSI handbook of virtual environments for training and education</i>	Dr Lemai Nguyen and Associate Professor Jacob Cybulski	2008
Into the future: Inspiring and stimulating users' creativity	Full written paper – conference proceedings	Dr Lemai Nguyen & Assoc. Prof. Jacob Cybulski	2008
<i>RMIT School of Business Information Technology Newsletter</i>	'eSimulations in the teaching of Project Management'	Ian Searle	Sep 2009
<i>inITiative</i> – quarterly Deakin ITSD newsletter	'Simulate Me' Story of eSimulations at Deakin	Stephen Segrave	Oct 2009
<i>A guide to designing, developing, using and evaluating eSimulations for professional learning in Australian higher education</i>	Guide	Project team	Jul 2010
Book in preparation with IGI Global – <i>Professional education using eSimulations: benefits of blended learning design</i>	Book	Team, national and international contributors	2011



Project posters and eSimulation portfolio

A series of project posters and eSimulation brochures have been developed, the first poster winning an 'Outstanding poster award' at the Ed-Media Conference, 2009.



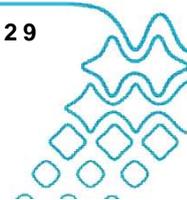
eSimulation brochures can be viewed at:

<http://www.deakin.edu.au/itl/insims/altc-project/dissemination.php> and their availability will be promoted into the future by means of various institutional, national and international showcase events.

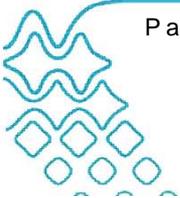
Conferences attended during the project

The following conferences were attended / presented at during the project:

Conference	When	Where	Attendees	Level of participation
eSimulations Project Conference 1	Oct 28, 2008	Deakin University, Geelong	Project team	Project planning day
Digital Fair 'Word of Mouse' eSimulation and Second Life Workshop Australian College of Educators (ACE)	April 15–17 2009	Geelong College	Stephen Segrave	Poster presentation / workshop
Sim TecT 2009 'Simulation – Concepts, capability & Technology' Simulation Industry Association of Australia (SIAA)	June 15–19 2009	Adelaide	Deb Murdoch	Attendee
 ED-MEDIA World Conference on Educational Multimedia, Hypermedia & Telecommunications	Jun 22–26, 2009	Honolulu, Hawaii	Dr Dale Holt	Poster Presentation (Award received)
The Higher Education Research and Development Society of Australasia (HERDSA)	July 6–9, 2009	Charles Darwin University, Darwin	Dr Dale Holt	Attendee
RMIT Teaching & Learning Forum	Sep 1, 2009	RMIT (50 people)	Dr Martin Dick, Professor Ross Smith, Ian Searle	Presenters
The e-learning Industry Association of Victoria – Showcase	Sep 17, 2009	State Library of Victoria, Melbourne	David O'Brien	Showcase presentation (award winner in University category)
Deakin Core Unit Coordinators' Workshop	Oct 5, 2009	Faculty of Business and Law, Deakin	Associate Professor Jacob Cybulski	Presenter on eSimulations
eSimulations Project Conference 2	Nov 5, 2009	Deakin University	Project Team	Presentation 'Leading eSimulations in action: development & opportunities'
CSU Ed Conference (internal)	Nov 27–28, 2009	CSU, Thurgooona Campus	Deb Murdoch	Running workshop & submitting two papers
Australian Society for Computers in Learning in Tertiary Education (ASCILITE)	Dec 6–9, 2009	Auckland, NZ	Stephen Segrave, Professor Mike Keppell	Poster presentation



Conference	When	Where	Attendees	Level of participation
Electronic Decision Support Tools (EDST) Research Project (ALTC)	Feb 11–12, 2010	University of Hobart, Tasmania	Deb Murdoch	Invitee, contributor
eSimulations Project Conference 3	June 1–2, 2010	RMIT, Melbourne	Project Team, RMIT eSimulation Interest Group, RMIT faculty staff	Presentation 'The ALTC eSims project – The RMIT simulations'
EDULearn10	July 5–7, 2010	Barcelona, Spain	Chris Bushell, Senior Lecturer CSU	Paper presented 'From Dirty Harry to Clarice Starling: A blended learning approach to police recruit education'
ACIS	Dec 2010		Associate Professor Jacob Cybulski	Paper submitted



12. Linkages

The ALTC has funded a significant number of educational technology and associated design projects through its grants and fellowships program. The project acknowledges the work of Oliver (2008) in developing a repository of learning designs for educational technologies and Goodyear (2009) in conceptualising ways of designing contemporary online-supported teaching and learning environments using design pattern theory. The eSimulations project adds to these initiatives by advancing learning designs of styles of role-based eSimulations for educating the professions in a range of disciplines and by various design conceptions in undertaking this task.

In relation to style of eSimulation further developed through the project, acknowledgement is given to the ALTC work in the field undertaken by the EnRoLE encouraging role-based learning environments project team (ALTC final report, 2009). Both styles of online-supported role-based simulations share in common the goal of developing communicative capabilities. The point of difference lies in the focus of our role-based eSimulations being on the student-as-professional interacting with virtual characters, rather than with fellow students playing various characters of relevance to the scenario as embodied as a key element of the EnRoLE project. Combining the expertise and interests of the people involved in both projects across practice, scholarship and research would be greatly beneficial to the sector. This also applies to projects in the area of three-dimensional virtual learning environments, including the one completed by the University of Southern Queensland, Central Queensland University and the Web3D Consortium (ALTC final report, 2010).

The EnRoLE project team built impressive capacity through establishing an international, national, state and local network of practitioners and researchers. The eSimulation project acknowledges the value of this networking, particularly in the area of dissemination of scholarly outcomes. It has recommended the need for greater networking as related to further building research and evaluation capacities for eSimulations and immersive virtual environments in the sector.

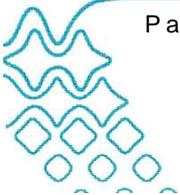
In the course of the project a number of national and international relationships have been established and built via the following means:

- The process of book preparation has served as a vehicle for establishing national and international relationships with individuals, institutions and organisations. A contribution has been made to developing a sense of community and a network of interested parties in the sector, regionally and further afield in Canada, USA, New Zealand and Europe. Appendix D details the members of the Editorial Advisory Board, spanning individuals and institutions in many countries.
- Deakin team members were also involved and participated in an International Flexible Education Symposium in November 2009, where relationships were built with the two keynote speakers:
 - Dr Terry Anderson, Professor and Canada Research Chair in Distance Education, Athabasca University, Canada
 - Dr Malcolm Brown, Director EDUCAUSE Learning Initiative, USA.
- Reference Group members are detailed in Appendix I.



It seems to me that this project has proved the viability of eSims as a valuable tool in the pedagogical workshop. I agree that there would be a good case for some national leadership to pursue this further rather than letting it quietly rest on a shelf somewhere.

Stas Lukaitis
Reference Group Member



13. Evaluations

The project team committed to a variety of evaluation approaches and methods in support of achieving the project objectives. This has involved ongoing informal evaluation through timely, well organised team meetings and milestone conference events, a comprehensive strategy of surveying all students for all eSimulation offerings, and two experimental approaches to formalising knowledge transfer and learning amongst partner project members. In addition, other technical, design and summative evaluation have occurred. Experiences with these evaluation endeavours are reported below.

Formative project evaluation

Throughout the life of the project

- Two sets of team meetings were convened on an alternating fortnightly basis:
 - Full team meetings to discuss formal agenda items, status of tasks, timelines, budget, task allocation and eSimulation design and development issues/insights/solutions. These meetings were minuted and minutes were distributed to all team members. Alternate meetings were conducted at Deakin and RMIT with the project manager physically in attendance.
 - Deakin team member meetings to discuss strategies, risk management, contingencies and tasks more pertinent to the lead institution.
- Monthly project progress reports were developed and distributed to all team members for review and feedback.
- The project reference group was provided with the monthly project progress reports and was encouraged to provide feedback.
- Documents pertaining to project deliverables and required timelines for delivery against status of progress were reviewed in team meetings.
- Three project conferences were run; October 2008, November 2009, June 2010 to provide an opportunity for a face to face gathering of all team members. The program included each partner university giving a presentation of their progress to date, issues for resolution and their key findings.

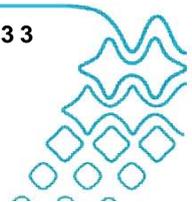
Student eSimulation evaluation

Student eSimulation evaluation survey instrument

A Student eSimulation Evaluation Survey Instrument (via Opinio software) was used to collect students' opinions and experiences of using eSimulations immediately following student exposure to the eSimulations in the relevant units/modules. The survey instrument is available at Appendix A.

The survey adopted by our project aimed at measuring students' perception of the effectiveness of teaching and learning in a blended learning environment, facilitated by the use of eSimulations.

The survey was administered at the three partner universities in the various subjects that involved some elements of blended learning and eSimulation. A combination of online and paper-based methods was used for data collection at the different sites.



The following eSimulations were employed in the course of the project and had the following survey responses:

Trimester / Semester 1, 2009

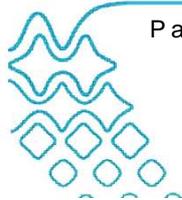
	eSimulation	Survey method	Respondents
KYC1	Know Your Client	Opinio Online Survey Tool	Number of invitees: 480 Number of responses: 100 Invitee response rate: 21%
BCFS1	Blue Cut Fashions (store)	Opinio Online Survey Tool	Number of invitees: 1504 Number of responses: 439 Invitee response rate: 29%
BCFC1	Blue Cut Fashions (chain)	Opinio Online Survey Tool	Number of invitees: 26 Number of responses: 11 Invitee response rate: 42%
RR1	Ringo Robotics	Paper based	Number of invitees: 82 Number of responses: 22 Invitee response rate: 27%
SRA1	Suicide Risk Assessment	PDF	Number of invitees: 20 Number of responses: 3 Invitee response rate: 15%

Trimester / Semester 2, 2009

	eSimulation	Survey method	Respondents
CV2	ClientView	Opinio Online Survey Tool	Number of invitees: 189 Number of responses: 35 Invitee response rate: 19%
RR2	Ringo Robotics	Paper based	Number of invitees: 80 Number of responses: 42 Invitee response rate: 53%
PITS2	Purple Integrated Taxi System (PITS)	Paper based	Number of invitees: 70 Number of responses: 60 Invitee response rate: 86%
SRA2	Suicide Risk Assessment	PDF	Number of invitees: 20 Number of responses: 2 Invitee response rate: 10%

Trimester / Semester 3, 2009

	eSimulation	Survey method	Respondents
BCFS3	Blue Cut Fashions (store)	Opinio Online Survey Tool	Number of invitees: 182 Number of responses: 30 Invitee response rate: 16%
UI3	UnReal Interviewing	Opinio Online Survey Tool	Number of invitees: 8 Number of responses: 4 Invitee response rate: 50%
DVS3	Domestic Violence Simulation	PDF	Number of invitees: 16 Number of responses: 15 Invitee response rate: 94%



Appendix G reports an analysis of the student eSimulation evaluation responses across all the eSimulations run across the three semesters/trimesters.

For a full collection of summary survey reports statistics for each individual eSimulation, visit our project website at: www.deakin.edu.au/itl/insims/altc-project/evaluation.php.

Survey critique

The Australian Consortium for Social and Political Research Inc (2009) were commissioned to perform a critique on the student eSimulation evaluation survey instrument (see Appendix A) used to collect student responses, with the following findings:

- In reviewing the questionnaire items, it was found that the questions were generally too complex, not salient to the respondents and required too much effort to interpret. Questions were also found to be biased. It is inferred that this has led respondents to respond in a way that reflects how they think they ought to respond, rather than accurately measuring their experience.
- The fundamental problem that was identified was a confusion between the educational strategies on which the project is based and the survey objectives. The questionnaire appears to have been designed with the intent of assessing whether the participants' responses provide confirmation of the merits of those strategies, rather than directly evaluating their effects on the experience.
- It was suggested that the project goals vis-à-vis evaluation of the project be modified to enable the first wave to be treated as a pilot that provides for a more useful evaluation framework. It was recommended that the questionnaire be re-designed.

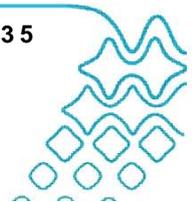
Towards a redesigned student survey instrument

Dr Scott Salzman and Dr Bardo Fraunholz, Deakin University, were commissioned to provide a method for constructing a new survey instrument.

Their findings suggested there were three possible ways forward:

1. Adjust our original questionnaire so that the original theme of each question is retained, ensuring each question is presented in a way that conforms to our current understanding of behavioural research, and to the use and applicability of statistical methodologies.
2. Reduce the complexity of our hypotheses and rewrite questions accordingly.
3. Consider the development of a new questionnaire, to allow for semantic differentiation of paired responses on a variety of predetermined educational constructs, providing possible evidence of the existence of these constructs, as well as good data regarding attributes of behaviour and attitude towards eSims.

The team believed that option two would be the suitable option to progress and recognised that, ideally, question redevelopment should be an iterative process, and incorporate the entire research team. As the same questionnaire should be delivered to both control and treatment participants, questions should be constructed so that they are meaningful to both groups of students.



In line with Option 2 the reworded research question proposed was:

Do eSims enhance student ability to learn, practise and perform professional skills (with respect to other methods) that can be identified in our curricula, and are requirements of particular professions?

In order to control the complexity of the focus questions and to allow for some measurement it was suggested, for example, the eSimulations should:

1. allow practise in the use of a professional skill
2. assess the student's perceived usefulness of the professional skill
3. provide a different experience (better or worse), that is, alter the educational experience for the student or the educator
4. be embedded in a course differently, if at all
5. indicate that educators should be trained differently (or retrained).

Therefore, the following new research hypotheses proposed are:

1. Do eSims affect learning?
2. Do eSims provide a practical learning experience?
3. Do eSims affect online engagement (where that educational institution offers this method of interaction)?
4. Do eSims affect overall educational experience?
5. Do eSims affect assessment?
6. What proportion of their educational experience in that unit did the respondent consider the eSim to comprise?
7. eSims should comprise what proportion (if any) of a/any unit? (also a surrogate question which inadvertently implies importance of eSims)

The hypotheses proposed could form the thematic basis for banks of possible questions; however, the number of questions presented should be kept to a minimum. Perhaps two pages with seven to 10 questions per page.

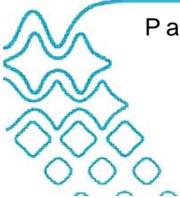
Possible examples of redesigned student eSimulation survey questions, which are much shorter and simpler to respond to, are reported in Appendix B.

It is proposed that a new redesigned survey instrument will be used in future work with eSimulation educational applications.

Knowledge transfer experience evaluation

Initial blog entries

Initially, a blogging facility was created for team members to enter their experiences and thoughts as the project progressed. However, due to time constraints, academic workloads and levels of discomfort, this was not utilised extensively by project participants who instead were more comfortable with sharing experiences at the fortnightly project team meetings, as recorded in the team meeting minutes.



Project conference: focus group sessions

As a contingency, during the second of the project conferences, November 2009, a focus group with team members was convened covering the following topics:

- issues:
 - eSimulation design
 - eSimulation development
 - use within the curriculum
- student responses
- findings to date
- solutions applied
- lessons learnt.

A second session of the project conference covered topics such as:

- Where are we at?
- future directions
- final deliverable: structure, content, look and feel
- dissemination opportunities
- book contributions.

Both of these sessions were videoed and transcriptions were produced. These can be viewed on our project website:

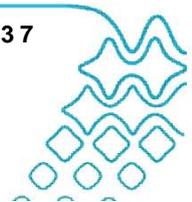
<http://www.deakin.edu.au/itl/insims/altc-project/evaluation.php>.

Knowledge transfer experience capture instrument

In addition to the above mentioned methods for capturing team member experiences, in April 2010, a Knowledge Transfer and eSimulation Development Experience Capture Instrument, (via Opinio software) was developed and used by team members to formally collect their experiences with knowledge transfer and eSimulation development. This instrument is reported at Appendix C. Team members were encouraged to 'blog' their experiences against a set of questions.

A phenomenological study

A phenomenological study of the data (Moustakis 1994, van Manen 1990) gathered from the focus group sessions and the Knowledge Transfer and eSimulation Development Experience Capture Instrument is reported in Appendix H.



Information Technology Services Division (ITSD) technical evaluation

Early in 2009 Deakin's ITSD performed a number of server load tests to ensure that the large student numbers proposed to be using eSimulations during the trimesters would be serviced efficiently.

Independent audit

An independent audit was conducted by Dr Di Challis, of Challis Consulting. The Independent Audit Report is reported at Appendix J.

eSimulation design evaluation

It is proposed that an evaluation of the actual eSimulation structure, design and match to pedagogy, will be conducted in the near future.

Summary of evaluation experiences

Effective project management is the key to ensuring evaluation commitments are followed through.

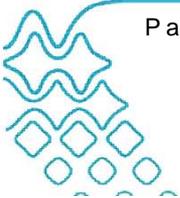
Regular project meetings and milestone team events are key forums for sharing expert views and experiences in using eSimulations with students. They enable informal formative evaluation to be sustained over the life of the project.

It is challenging to design a comprehensive, all-purpose eSimulation student experience survey instrument. Instruments need to be piloted and refined. Alternative instruments may need to be developed.

Beyond inclusive approaches to evaluating student experiences, depth of method needs to be adopted of relevance to particular eSimulations developed and used in different disciplines in different organisational settings.

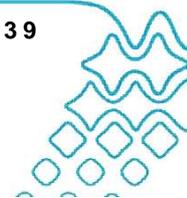
It is challenging to design and implement approaches which capture formally and systematically knowledge transfer and inter-institutional learning amongst a dispersed project team for the purposes of organisational capacity building. Experimentation and persistence is required.

Implementing action research and action learning in such projects is not straightforward. It is important, however, to adhere to the spirit of such collaborative learning approaches, and adapt methods based on changing project circumstance. Contingent action is required.

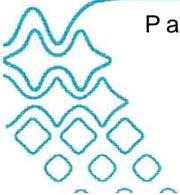


14. Reference list

- Australian Consortium for Social and Political Research Inc (ACSPRI). (2009). Internal report, Deakin University
- Aldrich, C. (2004). *Simulations and the future of e-learning: An innovative (and perhaps revolutionary) approach to e-learning*. San Francisco: Pfeiffer.
- ALTC. (2009). 'EnRoLE: encouraging role-based learning environments'. Final report. University of Wollongong (Lead), Macquarie University, The University of New South Wales, The University of Sydney and University of Technology, Sydney.
- ALTC. (2010). 'The seamless integration of Web3D technologies with university curricula to engage the changing student cohort'. Final report. University of Southern Queensland (Lead), CQUniversity and Web3D Consortium.
- Bonk, C. J., & Zhang, K. (2008). *Empowering online learning: 100+activities for reading, reflecting, displaying, and doing*. San Francisco: Jossey-Bass.
- Bonk, C. J. (2009). *The world is open: How web technology is revolutionizing education*. San Francisco: Jossey-Bass.
- Cassidy, J. (2008). ClientView. Australasian Tax Teachers Association Conference, Hobart, Tasmania.
- Corbitt, B., Holt, D., & Segrave, S. (2008). 'Strategic design for web-based teaching and learning: Making corporate technology systems work for the learning organisation'. In LA. Tomei (Ed.), *Online and distance learning: Concepts, methodologies, tools, and applications* (pp. 905–923). Pennsylvania: Information Science Reference (IGI Global).
- Cybulski, J., Parker, C., & Segrave, S. (2006a). 'Using constructivist experiential simulations in RE education', AWRE 2006, *Proceedings of the 11th Australian workshop on requirements engineering*, University of South Australia, Adelaide, Australia, 9 December.
- Cybulski, J., Parker, C., & Segrave, S. (2006b). 'Touch it, feel it and experience it: Developing professional IS skills using interview-style experiential simulations', ACIS 2006, *Proceedings of the 17th Australasian conference on information systems*, University of South Australia, Adelaide, Australia, 6–8 December.
- Cybulski, J., & Nguyen, L. (2010). *Educating business+IT professionals: A new alignment*. Unpublished paper, Deakin University.
- Demetrious, K. (2007). 'Playing a critical role: Experiential learning resources and analytical media studies and in higher education'. In *ICT: Providing choices for learners and learning. Proceedings ASCILITE Singapore 2007*. Retrieved from: <http://www.ascilite.org.au/conferences/singapore07/procs/demetrious.pdf>
- Goodyear, P. (2009). 'Teaching, technology and educational design: The architecture of productive learning environments', final Fellowship report, The University of Sydney (Lead).
- Kember, D. (2000). *Action learning and action research: Improving the quality of teaching and learning*. London: Kogan Page.
- Kemmis, S., & McTaggart, R. (1988). *The action research planner* (3rd ed.). Geelong: Deakin University.



- Moustakis, C. (1994). 'Methods and procedures for conducting human science research'. In *Phenomenological research methods* (pp. 103–119). Thousand Oaks, CA: SAGE Publications.
- Oliver, R. (2008). 'Promoting the sharing and reuse of technology-supported learning designs'. ALTC Associate Fellowship Report, Edith Cowan University (Lead).
- Pedler, M. (2006). 'Action learning for change?' *Action learning: Research and practice*, 3(1), 1–4.
- Pedler, M., Burgoyne, J., & Brook, C. (2005). 'What has action learning learned to become?' *Action Learning: Research and Practice*, 2(1), 49–68.
- Segrave, S. (2003a). 'HOTcopy® Benchmarking Design of Simulated Professional Practice for Authentic Learner Engagement'. In G. Crisp, D. Thiele, I. Scholten, S. Barker & J. Baron (Eds.), *Interact, Integrate, Impact: Proceedings of the 20th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education* (pp. 465–475) Adelaide, Australia. 7–10 December. Retrieved from: <http://www.ascilite.org.au/conferences/adelaide03/docs/pdf/465.pdf>
- Segrave, S. (2003b). 'HOTcopy: Simulations for learning professional journalism'. *Training and Development in Australia*, 30(3), 6–10.
- Segrave, S., & Holt, D. M. (2003). 'Contemporary learning environments: Designing e-learning for education in the professions'. *Distance Education: An International Journal*, 24(1), 7–24.
- Segrave, S., Holt, D., & Farmer, J. (2005). 'The power of the 6three model for enhancing academic teachers' capacities for effective online teaching and learning: Benefits, initiatives and future directions'. *Australasian Journal of Educational Technology*, 21(1), 118–135. Retrieved from: <http://www.ascilite.org.au/ajet/ajet21/segrave.html>
- van Manen, M. (1990). *Researching lived experience*. New York: University of New York Press.
- <HOTcopy®> A virtual newsroom (2003) (Version AU.1.0.0), Deakin University/Allen & Unwin Publishers, Allen & Unwin, St Leonards. NSW. Australia; Deakin University, Geelong, Victoria. Australia.

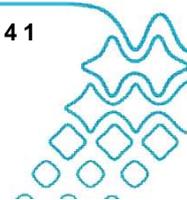


Appendix A: Student eSimulation evaluation survey instrument

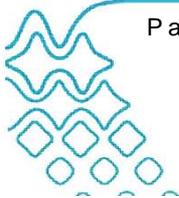
Student survey: Blue Cut Fashion (Store) eSimulation

(For this question type, tick your response to each statement in ONE of the 7 shaded boxes.)

1	'Blue Cut Fashion' brought to life abstract topics and helped me to relate them to the practice of Business Analysis.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
2	'Blue Cut Fashion' provided access to experiences that I may not otherwise have had in a university context.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
3	'Blue Cut Fashion' helped me learn business analysis skills because the scenarios helped me understand how complex situations unfold .	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
4	'Blue Cut Fashion' provided an opportunity to practise the kinds of learning (e.g. data analysis, observation and making recommendations) expected in the unit.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
5	'Blue Cut Fashion' opened up new opportunities for diverse feedback about how well I learned what the unit was designed to teach.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
6	'Blue Cut Fashion' was a valuable way of learning concepts and skills that would be difficult to experience in a real work place.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
7	While I was using 'Blue Cut Fashion', it provided a method for me to reflect on the quality of my performance.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
8	'Blue Cut Fashion' helped me develop confidence in my present capabilities in the area.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
9	I expect my learning from 'Blue Cut Fashion' to be useful later in an actual workplace.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
10	'Blue Cut Fashion' provides reliable evidence for assessment purposes of the kinds of learning expected.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
11	'Blue Cut Fashion' provides the simulated workplace conditions to measure my abilities more accurately than traditional approaches such as print can do.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
12	'Blue Cut Fashion' allows me to provide a more complete picture of my abilities than traditional methods such as print.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
13	Overall, 'Blue Cut Fashion' helped me achieve the learning results expected in the unit.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
14	Using 'Blue Cut Fashion' has led me to reflect more on the actual role of a business analyst.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
15	Using 'Blue Cut Fashion' has led me to reflect on my readiness for the professional role of a business analyst.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
16	'Blue Cut Fashion' broadened my thinking about the actual practice of business information systems.	Not Applicable				
		Don't Know				
		Strongly Agree	Agree	Neither	Disagree	Strongly Disagree



17. Describe any **valuable learning** from your use of 'Blue Cut Fashion'.
-
-
18. For learning systems analysis skills, is 'Blue Cut Fashion' **authentic in any important ways?** [Yes / No]
Please explain your response.
-
-
19. Was 'Blue Cut Fashion' valuable in helping you to **learn important things for assessment?** [Yes / No]
Please explain your response.
-
-
20. Do you support using 'Blue Cut Fashion' **for assessment purposes?** [Yes / No]
Please explain your response.
-
-
21. 'Blue Cut Fashion' is **well-integrated** into the unit as a whole. [Yes / No]
Please explain your response.
-
-
22. 'Blue Cut Fashion' could be used as **a stand-alone resource** for independent learning. [Yes / No]
Please explain your response.
-
-
23. Through communications in class or online, were there adequate **opportunities for you to prepare** for using 'Blue Cut Fashion'. [Yes / No]
Please explain your response.
-
-
24. Through communications in class or online, were there adequate **opportunities for you to review and discuss** 'Blue Cut Fashion'? [Yes / No]
Please explain your response.
-
-
25. Could 'Blue Cut Fashion' be **used for other learning** purposes? [Yes / No]
Please explain your response.
-
-



26. 'Blue Cut Fashion' was only one of **many learning approaches** you may have experienced in the unit. Which of the following approaches were used in conjunction with Blue Cut Fashion? (Check boxes for the approaches you experienced.)

Tick any of 1–5 and/or add any other approaches you have experienced.

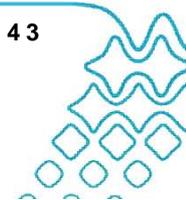
1	Study guide practice examples		13	
2	Study guide examples		14	
3	Guided readings		15	
4	In text questions		16	
5	Case studies		17	
6	Face-to-face tutorial discussions		18	
7	Face-to-face lectures		19	
8	iLectures		20	
9	Quizzes in DSO		21	
10	Online discussion groups		22	
11	Class role-plays		23	
12	Practical field work		24	

27	'Blue Cut Fashion' allowed me to learn at my own pace , in my own time and place .					Not Applicable
						Don't Know
Strongly Agree						Agree
Neither						Disagree
Strongly Disagree						
28	'Blue Cut Fashion' sustained my interest throughout.					Not Applicable
						Don't Know
Strongly Agree						Agree
Neither						Disagree
Strongly Disagree						
29	I was positively engaged in the experiences provided in 'Blue Cut Fashion'.					Not Applicable
						Don't Know
Strongly Agree						Agree
Neither						Disagree
Strongly Disagree						
30	My motivation to do assessment tasks increased due to the experience with 'Blue Cut Fashion'					Not Applicable
						Don't Know
Strongly Agree						Agree
Neither						Disagree
Strongly Disagree						
31	'Blue Cut Fashion' provides a non-threatening (e.g. low risk) way of learning work-related realities.					Not Applicable
						Don't Know
Strongly Agree						Agree
Neither						Disagree
Strongly Disagree						
32	'Blue Cut Fashion' provides the opportunity to demonstrate clearly what I think I can do.					Not Applicable
						Don't Know
Strongly Agree						Agree
Neither						Disagree
Strongly Disagree						

33. 'Blue Cut Fashion' is **hyper-real**. That is, a variety of elements are incorporated in the one setting that would not otherwise be possible to experience. **What element of this do you value?**

34. What are the **practical benefits** of engaging in a **simulated experience**, rather than having the actual experience in the physical world?

35	Should eSimulations be created for use in other units?					Not Applicable
						Don't Know
Strongly Agree						Agree
Neither						Disagree
Strongly Disagree						
36	Would you recommend 'Blue Cut Fashion' to other students?					Not Applicable
						Don't Know
Strongly Agree						Agree
Neither						Disagree
Strongly Disagree						

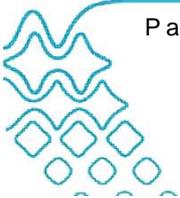


37. What **personal observations** of 'Blue Cut Fashion' would you like to provide?

38. From which campus do you study?

1	Burwood	
2	Geelong	
3	Warrnambool	
4	Off-campus Australia	
5	Off-campus international	

Thank you for taking the time to complete this questionnaire.



Appendix B: Possible redesigned student eSimulation evaluation survey questions

Your student number _____

(From this one observation point we have a great deal of demographic data; the difficulty would be in extracting it in a suitable format for subsequent analysis.)

Specific questions relevant to demographic grouping hypotheses:

How much time do you spend using computer games?_____ (units)

How much time do you spend on the computer doing stuff not related to university studies?_____ (units)

Did you use an eSim in this subject? Yes / No. If no, go to a later question.

I found the eSim to be:

Explain to respondents that they must tick the value which most closely represents their thoughts on this matter for example, ticking '1' indicates that they found it very beneficial, ticking '9' indicates the opposite, and ticking '5' means that they are neutral.

I found it beneficial to my learning	1 2 3 4 5 6 7 8 9	It did not help me learn anything at all
--------------------------------------	-------------------	--

Students will tick somewhere on the above semantic differential scale. Scalar quantities and limits to be defined by research team.

The development of the survey mechanism depends on which method the research team adopts to move forward with. Included here is an example that incorporates the simplification of the proposed hypotheses, and an example of some questions that attempt to align with constructs identified by Mr Segrave. In an attempt to identify those constructs, as well as others that may exist, a variety of semantic differential terms and linked phrases should be presented, for example:

Confusing to use	-----	Simple to use
Brilliant	-----	Disastrous
New skills learned	-----	No new skills learned
Business professionalism improved	-----	Not improved at all
Insight into real world skills	-----	Learned nothing new at all
Entertaining	-----	Boring
Motivated me to participate	-----	I'd rather be doing something else
Practical skill development	-----	Learnt nothing new

Include in each paired phrase a numeric scale that respondents can select from.



Using your Q1: *Know Your Client brought to life abstract topics and helped me to relate them to the practice of financial planning:*

This eSim:

Improved my financial planning knowledge 1 2 3 4 5 6 7 8 9	Did nothing to improve my knowledge of financial planning
--	---

Or whatever way you would choose to phrase it given the theme of the response you sought to measure.

Whatever the research team believe aligns with their underlying strategies should inform the development of these semantic type differential pairs. The presentation should be such that, the respondent selects by simply placing a mark on a line. Notwithstanding, the reduction in 'time on task' this simple approach provides respondents, would theoretically allow for a great number of requested data points. Other hypotheses, for example:

'Do eSims affect online engagement?' should be phrased such that either the treatment or control group can answer it.

For example:

Did anything motivate you to engage online? Yes / No. If no, go to later question.

If yes, what motivated you to engage online?

Participant could select from a list:

Educator, I was told to, It seemed the easiest way, electronic simulations, other or ask for a one word response.

Similarly, consider a control group question for all questions.

Do eSims affect assessment? What proportion of their educational experience in that unit did the respondent consider the eSim to comprise?

Do eSims affect overall educational experience?

This could be assessed using the same type of semantic differentials described above.

Questions should be presented that require only simple thought, for example:

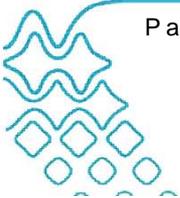
*How much time would you guess that you spent reviewing the eSim in this subject?
_____ (units)*

Of course this would be zero for control group participants.

Correlate this measure with students overall and interim assessment results for an interesting regression model result, could it be that the more time spent reviewing eSims is indicative of a student with a higher mark?

1. *eSims should comprise what proportion (if any) of a/any Unit? (This is also a surrogate question which inadvertently implies the importance of an eSim to the respondent.)*

Ask the student about this estimated proportion outright.



Appendix C: Knowledge transfer and eSimulation development experience capture instrument

Six key issues blogs (21 April 2010)

Question 1

Your name: Enter your name in the text field below. This will be like a blog. Your entries are not anonymous.

Question 2

Nominate your own general challenges, issues, problems or solutions.

(This is an open question. Dot-point your reflections before looking at the prompted items under each section.)

For issue (1) 'Technical (infrastructure) design'

Question 3

Nominate your own challenges, issues, problems or solutions

Question 4

Determining organisational needs and resources

(what facilities and resources are available to support future eSims and what is needed to develop / acquire in the future)

Question 5

Determining early eSimulations

(what infrastructure option is best for my organisation)

Question 6

Acquisition of eSimulation infrastructure

(purchasing technology components – servers, characters, voices and additional software, developing in-house skills and capabilities, negotiation of certain capabilities to be outsourced)

Question 7

Deployment of eSimulation infrastructure

(installation and learning to effectively use infrastructure components)

Question 8

Evaluation and improving the eSimulation infrastructure

For issue (2) 'Technical (eSimulation) design'

Question 9

Nominate your own challenges, issues, problems or solutions

Question 10

Designing user interfaces

(environments, spaces, stage design, props, brands, forms, buttons and controls, sounds, engagement of graphic designer, photographer and multimedia designer, sound engineer)



Question 11

Designing scenario / dialogue

(scenario design, questions/prompts, responses/lines, conversation states and state transitions, interrupts, time events, fidgets and boredom)

Question 12

Designing control and interaction

(forms, buttons, text and media objects, custom swf, integration, flow of screens and navigation)

Question 13

Designing characters and voices

(choosing characters, selection of voices, creation of custom avatars)

Question 14

Developing scripts

(developing dialogue scripts using tools, embedding special effects, emphasis and body language, XML work to integrate and link the screens)

Question 15

Customisation of existing eSimulations

(changing characters and voices, changing brands, changing media objects, changing dialogue, changing the flow and logic, changing the template, changing the framework)

Question 16

Teaching educational designers/developers in eSimulation development

Teaching IT, multimedia developers and teachers in eSimulation development

For issue (3) 'Education design'

Question 17

Nominate your own challenges, issues, problems or solutions

Question 18

Adopting existing eSimulations for teaching

(own or acquired)

Question 19

Setting educational objectives

Embedding educational objectives in an eSimulation (types and number of scenarios, tasks to be undertaken, dialogues to be developed or customised, issue (what should eSim achieve in the curriculum)

Question 20

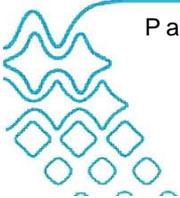
Determining educational methods with eSimulations

(types of engagement, skills and knowledge to be developed, skills and knowledge to be required, ways of assessing learning, individual / group tasks)

Question 21

Blending eSimulations with other curriculum components

(how eSimulations will interact with classroom, face-to-face and online activities)



Question 22

Setting assessment regime with eSimulations
(how learning with eSims be assessed)

Question 23

Tracking and assessment of students' performance
(collecting student performance in a database, assisting teachers in marking, designing assessment tasks outside the eSimulation, understanding performance vs. activities vs. standards)

Question 24

Evaluation of educational outcomes and improving eSimulation experiences of students and staff (surveying students and staff, lessons learnt, actions to follow)

Question 25

Teaching the teachers in using eSimulations in classes

For issue (4) 'Student experience design'

Question 26

Nominate your own challenges, issues, problems or solutions

Question 27

Designing student experience
(styles of interaction, ways of immersion in tasks, flow of events, types of interaction, audio-visual environments, level of authenticity, reality gaps, time pressure, repeatability of the eSimulation experience.)

Question 28

Creating eSimulation 'presence' in lectures, tutorials, online and assessment
(creating authenticity of experience)

For issue (5) 'Research design'

Question 29

Nominate your own challenges, issues, problems or solutions

Question 30

Evaluation of technical eSim design and improving eSimulations (how well did it work, what can be changed and how)

Question 31

Evaluation of educational outcomes and improving (students' and staffs') eSimulation experience (surveying students and staff, lessons learnt, actions to follow)



For issue (6) 'Collaboration and dissemination'

Question 32

Nominate your own challenges, issues, problems or solutions

Question 33

Collaboration with and/or dissemination to colleagues on the same campus

Question 34

Collaboration with and/or dissemination to colleagues in the same university

Question 35

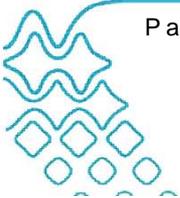
Collaboration with and/or dissemination to ALTC project participants

Question 36

Collaboration with and/or dissemination to parties in Australia

Question 37

Collaboration with and/or dissemination to colleagues overseas



Appendix D: Editorial Advisory Board of the book in preparation

The Editorial Advisory Board consists of the following members:

Dr Malcolm Brown, Director, EDUCAUSE Learning Initiative, USA.

Professor Brian Corbitt, Head of School of Business Information Technology and Logistics, RMIT University, Australia.

Professor John Hedberg, Millennium Innovations Chair of ICT and Education; and Head of Department of Education, Faculty of Human Sciences, Macquarie University, Australia.

Professor Mike Keppell, Director, The Flexible Learning Centre, Charles Sturt University; and President of the Australasian Society of Computers in Learning in Tertiary Education (ASCILITE).

Dr Jan H G Klabbers, founder and managing director of an international management and policy consultancy. He was the general secretary of International Simulation and Gaming Association from 1976 to 2004, its president from 1988 to 1989, and an honorary member since 2004.

Associate Professor Piet Kommers, Faculty of Behavioral Sciences, University of Twente, Enschede, The Netherlands.

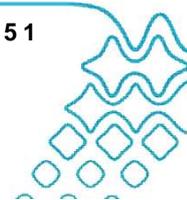
Dr Michelle Lamberson, Office of Learning Technology, University of British Columbia, Canada.

Dr Elysebeth Leigh, Project Director, Deputy Vice-Chancellor (Teaching, Learning & Equity), University of Technology, Sydney, Australia.

Associate Professor Som Naidu, Director of Quality Enhancement and Evaluation Services, Charles Sturt University, Australia; and Executive Editor of *Distance Education: An International Journal*.

Dr Rod Sims, President of the Open and Distance Learning Association of Australia (ODLAA), Australia.

Dr Christine Spratt, Deputy Director Programs, Higher Education, Northern Melbourne Institute of TAFE, Australia; and joint editor of the book *E-learning Technologies and Evidence-based Assessment Approaches* (published by IGI Global).



Appendix E: Structure of the book in preparation

Professional Education Using eSimulations: Benefits of Blended Learning Design

Editors: Dr Dale Holt, Mr Stephen Segrave and Associate Professor Jacob Cybulski
Deakin University, Australia, 18 May 2010

Foreword

Preface

Introducing eSimulations for educating the professions in blended learning environments

Section 1: Theorising the nature of design for authentic learning and eSimulations

A reappraisal of design practice

Real experiences with virtual worlds

Design of an authentic e-learning environment

Section 2: eSimulation learning designs in action

eSimulations for the purpose of training forensic (investigative) interviewers

Midwifery education: A blend of teaching and learning approaches

Evaluating the impact of a virtual emergency room simulation for learning

Professional skill development in distance education through the use of simulations:
A holistic approach to designing for blended learning

Simulating difficult nurse patient relationships: Meeting the online continuing professional
development needs of clinical nurses with low cost multimedia eSimulations

Blended learning designs facilitated by new media technologies including eSimulations

Integrating eSimulations in teaching business information systems

Developing professional competence through blended learning design

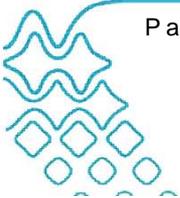
Media effects: eSimulations, authentic learning and relevance

Using eSimulations in sales training: Benefits of blended learning design

Scenario based learning: Experiences in the application of a generic teaching software
tool for a range of learning objectives

Supporting the design of interactive scenarios in a university environment:
Techniques, issues and constraints

The SUPL approach: A conceptual framework for the design of 3D simulation
environments based on gaming technology within a problem-based learning pedagogy



Through the looking glass: Immersive interfaces for participant engagement in blended e-learning settings

Adopting 3D virtual worlds to support next generation learning

Section 3: Developing knowledge and building capacities for eSimulations

A framework for designing mainstream educational eSimulations

The challenge of evaluating the use of eSimulations in blended learning environments:
A case for design-based research

Future directions and possibilities for eSimulations in professional education

Compilation of references

About the contributors

Index

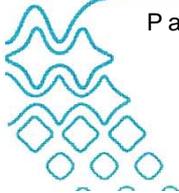


Appendix F: Deakin University's eSimulation program (DeakinSims 2001–2010)

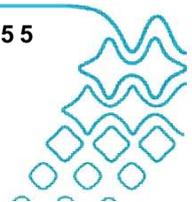
DeakinSims program timeline

Grants – Awards – Dissemination

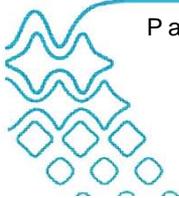
November 2009 AWARD 7	e-learning Industry Excellence Award for 'University e-learning – Deakin University for eSimulations'. The award recognises innovation in the design and development of e-learning in the University sector. Criteria include: quantifiable benefits, learning design, effectiveness of delivery, quality of content, administration and assessment, the relationship between established pedagogical principles and the effective use of technologies. The award emphasised the way in which learners are introduced to sophisticated subjects and learning situations.
July 2009 AWARD 6	Award for 'Exemplar of Teaching Excellence' in the Faculty of Business and Law. (The eSims 'Know Your Client' and 'ClientView') The faculty awards showcases practices that lead to student engagement as measured by the Australasian Survey of Student Engagement (AUSSE) and emphasise providing students with wide, enriching educational experiences and helping students actively construct their own knowledge (active learning). Evaluation data was expected and the award application for 'Know Your Client' benefited from the Opinio online survey conducted in the ALTC project and the Student Evaluation of Teaching and Learning (SETU), conducted by the University.
August 2008 AWARD 5	PRessure Point! won an award for one of the best contributions to the Technology Supported Learning Database (TSBSL) . A panel of experts judged Pressure Point! to be one of the best of 52 entries to the database for the year. Ron Oliver Pro-Vice-Chancellor (Teaching and Learning) Edith Cowan University invited the contribution of PRessure Point! to participate in that Carrick Project on Learning Designs and for 'learning design' of PRessure Point! to be analysed. 'TSLDB is a Carrick funded project which explored ways to make effective technology-facilitated teaching ideas, reusable and sharable. The project aims to explore ways to make the teaching ideas (that people want to share) accessible, visible and easy for others to replicate.' http://aragron.scca.edu.edu.au/tsbl .
June 2008 AWARD 4	Deakin University Vice-Chancellor's Award The award for ' Outstanding Achievement in Teaching and Learning ' is presented to the <i>LiveSim Pressure Point! Virtual Practice (Scenario 1: Getting Framed)</i> .
June 2008	Teaching & Learning Conference (2 days) <i>Deakin's eSimulations</i> (3 presenters) 1. Know Your Client: Financial Planning, Mike Kerry and Bruce Clayton (Accounting, Economics and Finance) 2. Conversations on demand: Developing professional skills with conversational characters, Jacob Cybulski (Business and Law) and Stephen Segrave (Institute of Teaching and Learning) 3. Building evidence about the efficacy of eSimulations in education for the professions, Stephen Segrave (Institute of Teaching and Learning) and Peter Poteralski (DeakinPrime).
May 2008 Grant 6	Australian Learning and Teaching Council (ALTC) Competitive Grants Program <i>Program Priority Area 4: Innovation in learning and teaching, particularly in relation to the role of new technologies.</i> Project title: <i>Building academic staff capacity for using eSimulations in professional education for experience transfer.</i> Digital simulations (eSimulations) for student learning of professional experience and the dissemination of successful eSimulations for sector-wide improvements to flexible learning will be facilitated by aligning educational, technical and evaluation strengths of the universities of Deakin, RMIT and Charles Sturt to build academic and professional staff capacities for this purpose (\$120,000 for 2 years).
March 2008 GRANT 5	Strategic Teaching and Learning Grants Scheme (STALGS) Project title: <i>Evidence-based, flexible e-learning for the professions: building integrated student tracking in Deakin's eSimulations for improved assessment, evaluation and research.</i> 'Blue Apple Cruises', a new eSimulation using 'Avatar' style, character-server technology and synthetic Text-To-Speech (TTS) engines, was developed for DeakinPrime to be piloted in a segment of their PD program for Certified Practising Accountants (CPA) Australia. A new student interaction tracking database (back-end) and a web 'front-end' were created to interface with wholly online LiveSims and synthetic eSimulations.
February 2008	External presentations: InSims – Simulated Learning Designs facilitating experiential learning of professional skills. RMIT City Campus, Melbourne, Charles Sturt University, Thurgoona Campus, Albury.



October 2007	ViewQuest is launched for the Division of Student Life. Developed by KMD for ITL and DSL, this simulated interview player is a 'low-threshold' learning object containing interviews with ten staff and ten students about 'Conceptualising a Research Question' for international, higher-degree-by-research students. Conceptually ViewQuest is a child of LiveSim, using Adobe Flash technology.
September 2007	Teaching & Learning Conference (2 days) <i>Enhancing teaching and learning through eSimulations</i> <ol style="list-style-type: none"> 1. Jacob Cybulski: Simulating educational experiences for large classes to learn professional skills 2. Alex Mussap: Use of simulated interviews in psychology 3. Martine Powell: UnReal Interviewing: Virtual forensic interviewing of a child 4. Stephen Segrave, Jacob Cybulski & Craig Parker: PD workshop: InSims: Simulated Learning Designs facilitating experiential learning of professional skills
September 2007	HOTcopy is updated by Deakin University and Allen & Unwin (Ver. AU 1.2.0).
August 2007	Deakin seminar presentations: <i>Designing professional work experience in eSimulations</i> Assoc. Prof. Jacob Cybulski, Faculty of Business and Law, 2007 Fellow, Institute of Teaching and Learning Stephen Segrave, Institute of Teaching and Learning.
June 2007 FELLOWSHIP	Teaching and Learning Fellowship awarded to Assoc. Prof. Jacob Cybulski in the area of eSimulations. Jacob works on the InSims Wiki and the Character-Server technologies with Reserve STALGS recipient Stephen Segrave.
May 2007	Presentation: University of Melbourne (Biomedical Multimedia Unit) <i>Cutting IT on the Edge with New Media the Deakin Way: engaging student learning in contemporary higher education settings.</i> Stephen Segrave, Ian Smissen and Dale Holt.
February 2007 GRANT 4	Strategic Teaching and Learning Grants Scheme (Reserved) Project title: <i>eSimulations: Deakin's Leadership in eSimulations in Higher Education—Create new eSim models for clients.</i> This project delivered character server technology for synthetic characters and text-to-speech.
February 2007	The LiveSim Know your Client: Financial Planning is developed by Mr Mike Kerry and Assoc. Prof. Bruce Clayton for financial planning, accounting and insurance, and implemented in semester 2, 2007 in the unit MAF311 Superannuation Planning. It continues to be used on that unit during 2007–2010. Students are immersed and actively engaged in a real-world problem, advising a married couple about their investments.
November 2006	Evaluation report on LiveSims: Professor Mike Keppell, (Centre for Learning, Teaching and Technology, Hong Kong Institute of Education) completed an evaluation with recommendations about the LiveSim agenda. His report he singled out PPressure Point! and UnReal Interviewing, recommending they be submitted to the annual awards of ASCILITE.
October 2006	Teaching & Learning Conference (2 days) Session: <i>Experiential learning through eSimulations</i> <ol style="list-style-type: none"> 1. Getting framed—virtually, Kristin Demetrious (Communication and Creative Arts) 2. MIDAS simulation in sports management, Paul Turner (Management & Marketing) 3. Toward Design Frameworks for Interactive Simulations and Learning Modules, Craig Parker (Information Systems) 4. Dealing with conflict, redundancy and omission: developing professional skills using experiential eSimulations, Jacob Cybulski (Centre for Business Research) 5. Enhancing Skills in Professional Practice Through Simulated Interviewing: Client View, Julie Cassidy (Law) 6. Implementing the scientist-practitioner model through simulated interviews, Boris Crassini (Psychology)
July & August 2006	Institute of Teaching and Learning Seminar Series: Simulated Interviewing: Crassini (Psychology), Cybulski (Information Systems), Cassidy (Law).
September 2005	HOTcopy is updated by Deakin University and Allen & Unwin (Ver. AU 1.1.1).
July 2004 GRANT 3	Strategic Teaching and Learning Grants Scheme (STALGS \$75,000 grant) Project title: Experiential Learning Through Simulations: Enhancing education in the professions through interactive computer simulations online. Criteria include: 'innovations in teaching and learning which may be able to be applied elsewhere in the institution'; 'improvements in the use of technology for teaching and learning'. Collaborate with several faculties to develop a simulation environment based on <i>HOTcopy</i> then create scenarios in four professions: Work began on LiveSim with the development of FAB-ATM for business systems, Pressure Point for public relations, Client View for law, Mods & Rockers for psychology and UnReal Interviewing for psychology.



March 2004	<i>HOTcopy</i> is demonstrated to the Educational Development Centre of Hong Kong Polytechnic University.
January 2004 GRANT 2	Higher Education Equity Program (HEEP) Grant < www.deakin.edu.au/itl/teach-learn/cases/files/participants/segrave.htm > Project title: <i>Embed accessibility functions in HOTcopy</i>. A pilot project to develop new approaches for making more accessible, digital AV media based on QuickTime delivered online and CD. HEEP was established to 'provide grants to institutions to try out pilot projects designed to increase participation in higher education' and, if successful, for those pilot projects to be incorporated into the institutions on-going activities. Grants are provided to 'support innovative, action-oriented initiatives to increase participation of disadvantaged groups ' and/or 'implementing or expanding proven equity initiatives into mainstream activities of the institution'
December 2003 AWARD 3	<i>HOTcopy</i> is winner of the major Australasian award for Best Software Project demonstrating ' exemplary use of electronic technologies in teaching and learning in tertiary education ' (ASCILITE). In November it is also a finalist in the ATOM awards educational / vocational category Best Tertiary Educational Resource .
September 2003	<i>HOTcopy</i> is published by Allen and Unwin (Ver. AU 1.0.0) and is released for sale prior to semester 1, 2004.
June 2003	<i>HOTcopy (Version 3)</i> containing one additional scenario (sub-editor role) is released for semester 2, 2003.
May 2003	HOTcopy website < www.HOTcopy.info > is launched extending services to scenarios on CD-ROM, dynamically updating using xml files. The website also extends help services, feedback and evaluation. <i>HOTcopy</i> reaches 5th position in the Oklahoma State University Distance Education Award for Excellence in Distance Education at the Learning and Training Conference and Expo, Washington DC (April).
December 2002 AWARD 2	<i>HOTcopy</i> is winner of the Deakin University Vice-Chancellor's award for Excellence in Teaching .
July 2002 AWARD 1	<i>HOTcopy</i> wins the major national award for Innovation in Learning from the Australian Institute of Training and Development (AITD) 2002.
May 2002	<i>HOTcopy (Version 2)</i> containing two new mid-range scenarios is released for use and evaluation in semester 2, 2002. These new scenarios invite students to play the role of a reporter.
March 2002	<i>HOTcopy (Version 1)</i> containing three scenarios: first-year entry level, mid-undergraduate level and high postgraduate level of complexity. Designed for field testing and use. Released for semester 1, 2002. It is demonstrated to newspaper editors from regional Victoria: Geelong Advertiser, Shepparton News, Bendigo Advertiser, Ballarat Courier, Border Mail, Warrnambool Standard.
October 2001	<i>HOTcopy</i> is launched by the project team from Deakin as a prototype, 'proof of concept' at the annual journalism conference of the Melbourne Press Club. Journalism staff and students from various institutions and employer groups were in attendance.
March 2001 GRANT 1	DVC-A (Category A) Funded project: E-learning in Journalism. The project included the stated goal to develop <i>HOTcopy</i> , an authoring tool allowing teaching staff to create any number in a series of online, interactive scenarios simulating 'slice of life' events within the journalism profession. <i>HOTcopy</i> is pivotal to the program's approach to teaching and learning online, and will underpin teaching, learning and assessment strategies across all program levels and modules.



Appendix G: Student eSimulation evaluation responses

Student experiences and perceptions

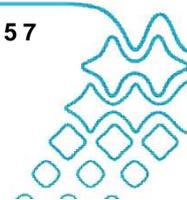
The following eSimulations were employed in the course of the project and had the following survey responses:

Trimester / Semester 1, 2009

	eSimulation	Survey method	Respondents
KYC1	Know Your Client	Opinio Online Survey Tool	Number of invitees: 480 Number of responses: 100 Invitee response rate: 21%
BCFS1	Blue Cut Fashions (Store)	Opinio Online Survey Tool	Number of invitees: 1504 Number of responses: 439 Invitee response rate: 29%
BCFC1	Blue Cut Fashions (Chain)	Opinio Online Survey Tool	Number of invitees: 26 Number of responses: 11 Invitee response rate: 42%
RR1	Ringo Robotics	Paper based	Number of invitees: 82 Number of responses: 22 Invitee response rate: 27%
SRA1	Suicide Risk Assessment	PDF	Number of invitees: 20 Number of responses: 3 Invitee response rate: 15%

Trimester / Semester 2, 2009

	eSimulation	Survey method	Respondents
CV2	ClientView	Opinio Online Survey Tool	Number of invitees: 189 Number of responses: 35 Invitee response rate: 19%
RR2	Ringo Robotics	Paper based	Number of invitees: 80 Number of responses: 42 Invitee response rate: 53%
PITS2	Purple Integrated Taxi System (PITS)	Paper based	Number of invitees: 70 Number of responses: 60 Invitee response rate: 86%
SRA2	Suicide Risk Assessment	PDF	Number of invitees: 20 Number of responses: 2 Invitee response rate: 10%



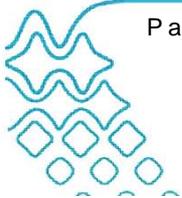
	eSimulation	Survey method	Respondents
BCFS3	Blue Cut Fashions (Store)	Opinio Online Survey Tool	Number of invitees: 182 Number of responses: 30 Invitee response rate: 16%
UI3	UnReal Interviewing	Opinio Online Survey Tool	Number of invitees: 8 Number of responses: 4 Invitee response rate: 50%
DVS3	Domestic Violence Simulation	PDF	Number of invitees: 16 Number of responses: 15 Invitee response rate: 94%

The following analysis is based on the framework used in the paper by Cybulski and Nguyen (2010.)

The survey results made inroads into understanding the perceptions of students in a blended learning environment with eSimulations and we have highlighted results of 12 key items.

Students generally praised the eSimulation’s ability of bringing to life abstract topics that could easily be related to the professional practice to be learnt.

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	13%	75%				
BCFS	19%	63%			12%	75%
BCFC	0%	77%				
RR	23%	76%	28%	69%		
SRA	0%	100%	50%	50%		
CV			7%	57%		
PITS			6%	71%		
UI					33%	66%
DVS					26%	66%

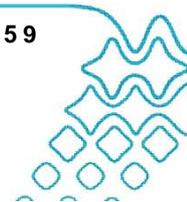


They emphasised that eSimulations provided them with access to experiences that they may not otherwise have had in a university context.

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	40%	41%				
BCFS	27%	46%			25%	45%
BCFC	44%	44%				
RR	19%	61%	28%	61%		
SRA	0%	50%	0%	100%		
CV			10%	57%		
PITS			8%	54%		
UI					66%	0%
DVS					13%	66%

Interestingly, in spite of learning professional skills needed outside the university context, students still believed that without the assistance of simulation and blended learning, some of the concepts and skills they acquired would be difficult to learn in a real work place.

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	18%	45%				
BCFS	20%	46%			18%	50%
BCFC	44%	33%				
RR	9%	76%	26%	57%		
SRA	0%	0%	0%	100%		
CV			20%	30%		
PITS			13%	51%		
UI					66%	33%
DVS					13%	80%

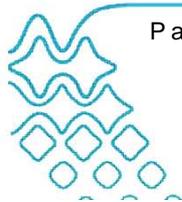


Overall, students believed that the blended environment allowed them to engage in valuable practice of the profession and in particular learning the specific skills required to act in that role; ...

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	15%	46%				
BCFS	34%	51%			29%	62%
BCFC	22%	77%				
RR	15%	70%	24%	65%		
SRA	100%	0%	100%	0%		
CV			7%	46%		
PITS			8%	71%		
UI					66%	33%
DVS					26%	73%

... and assisted them to develop confidence in their present capabilities in the area.

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	5%	48%				
BCFS	20%	46%			13%	63%
BCFC	11%	44%				
RR	9%	80%	16%	64%		
SRA	0%	100%	0%	100%		
CV			4%	30%		
PITS			8%	30%		
UI					0%	66%
DVS					26%	53%

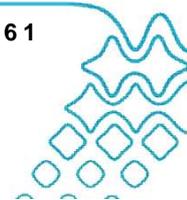


They conceded that all learning gained in the process would be useful later in an actual workplace.

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	23%	51%				
BCFS	30%	40%			31%	31%
BCFC	33%	55%				
RR	23%	57%	33%	50%		
SRA	0%	50%	50%	50%		
CV			13%	43%		
PITS			8%	57%		
UI					66%	0%
DVS	23%	51%				

It was rewarding to note that the end of semester surveys revealed students' recognition and understanding of the actual role on which the unit focused ...

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	32%	56%				
BCFS	23%	51%			18%	54%
BCFC	33%	55%				
RR	23%	61%	26%	69%		
SRA	100%	0%	50%	50%		
CV			18%	54%		
PITS			11%	56%		
UI					33%	66%
DVS					20%	73%

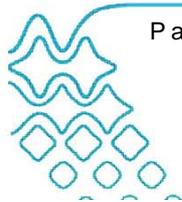


... and their readiness to undertake such a professional role in the future.

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	23%	47%				
BCFS	15%	51%			22%	50%
BCFC	22%	44%				
RR	33%	47%	16%	66%		
SRA	0%	100%	0%	100%		
CV			4%	34%		
PITS			8%	41%		
UI					66%	33%
DVS					26%	53%

Being representatives, in the large majority, of Generation Y, it was not surprising to note that the interactivity, engagement and ‘gaminess’ of the professional role projects sustained students’ interest throughout the semester; ...

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	14%	61%				
BCFS	17%	46%			22%	50%
BCFC	0%	75%				
RR	23%	76%	13%	63%		
SRA	100%	0%	50%	50%		
CV			10%	52%		
PITS			7%	44%		
UI					33%	66%
DVS					28%	42%

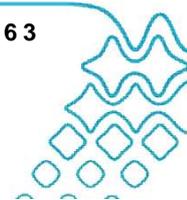


... they felt positively engaged in the projects; ...

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	17%	61%				
BCFS	17%	47%			18%	50%
BCFC	12%	75%				
RR	33%	57%	31%	60%		
SRA	100%	0%	50%	50%		
CV			10%	57%		
PITS			5%	59%		
UI					33%	66%
DVS					35%	35%

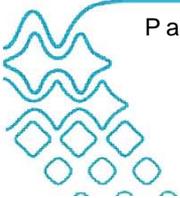
... and their motivation to succeed in their assessment tasks was increasing with the level of engagement.

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	14%	57%				
BCFS	19%	36%			22%	36%
BCFC	12%	50%				
RR	23%	61%	25%	55%		
SRA	–	–	0%	50%		
CV			10%	31%		
PITS			5%	41%		
UI					33%	33%
DVS					14%	50%



Learning professional skills via a simulation, rather than having the actual experience in the physical world, was considered by students as beneficial in a number of ways. eSimulations were viewed as offering safety and permitting unpunished experimentation, trial and error whilst at the same time retaining acceptable authenticity of learning experience, giving flexibility in learning methods and accessibility of tools and environment as per the following student statements:

- Easier, can do in own time, can revisit things (KYC1);
- Non-threatening and safe (KYC1);
- People with little confidence are unafraid to express themselves more and ask the wrong questions because ultimately nobody knows if you're asking the wrong questions. Freedom for mistakes. Confidence builder (KYC1);
- You can get it wrong, compare with peers and learn the process (BCFS1);
- Not penalised for mistakes. Feel free to experiment and learn! (BCFS1);
- One can conduct interview any number of times if anything was missed before, Interviews can be conducted at one's convenience (anytime of the day!!) (BCFC1);
- Low risk, an opportunity to allow us to fail and improve (RR1);
- Practice, reflection, safe (you can learn from not providing the best answer) (SRA1);
- It is more structured, guided and helps alleviate the stress that would come if you were to experience this for the first time whilst in the real world (CV2);
- Limited risk, supportive environment, opportunity to learn from other people's perspective and experience (RR2);
- More control over the response and information received (PITS2);
- You are more relaxed and less self conscience – which enables you to learn better and not be afraid to try (SRA2);
- Less stress was a huge factor. Questions were predetermined and it could be repeated if needed without the risk of sounding ignorant or inexperienced (BCFS3);
- ... there was no pressure and you could make several attempts (UI3);
- Learn in a safe controlled environment (DVS3);
- Not hazardous (DVS3).



One of the important factors in this positive reception of blended learning and eSimulation was that learning work-related realities was considered by students as non-threatening (e.g. low risk).

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	35%	42%				
BCFS	24%	54%			22%	50%
BCFC	22%	77%				
RR	35%	45%	19%	58%		
SRA	100%	0%	50%	50%		
CV			26%	47%		
PITS			24%	55%		
UI					66%	33%
DVS					28%	71%

However, this perception of safety should not be construed as a perceived lack of realism. In fact, authenticity of experience was an important aspect readily recognised by students. They particularly valued the real-life feel of the project, reality of handled data, reality of skills gained and the reality of the roles they could potentially play in their future work.

The following student statements in regard to authenticity provide best insight into students' perceptions of the realism of the confronted tasks:

- It helped me understand and get a clear view on what interviewing a client is really like (KYC1);
- The questions we had to work through made us sift through and make sense of data, which I would expect to do as a business analyst. It gave a small taste of the profession. (BCFS1);
- Being able to apply the theory into an actual scenario was beneficial in learning (BCFS1);
- It provides the possible events that may happen during a real project (RR1);
- It provides an opportunity to improve skills and questioning techniques, it is also an area of study that you cannot have too much of (SRA1);
- The need to probe for further information and the tendency for clients to get sidetracked was realistic (CV2);
- The frequent events really let me realise the complex[ity] of a real work environment, which is more complicated than what the textbook says (RR2);
- Lets you see if the interviewee is becoming agitated (PITS2);
- Yes as already working in a business environment these types of analysis are what is done every day in the real world (BCFS3);
- It felt very real and gave me a chance to really practice these skills (UI3);
- Realistic scenarios, questions knowledge of legislation (DVS3).



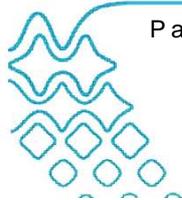
As can be seen from these statements, the majority of students across all eSimulations recognised realism of their ‘whole experience’; they appreciated the means of interaction with the eSimulation; they acknowledged authenticity of the business cases/scenarios complete with their complexity and imperfections, as well as the realism of analytic tasks and their challenges.

Most importantly, they enjoyed the entire experience and indicated they would recommend it to fellow students.

eSim	Trimester / Semester 1		Trimester / Semester 2		Trimester / Semester 3	
	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
KYC	91%	9%				
BCFS	82%	18%			90%	10%
BCFC	75%	25%				
RR	100%	0%	97%	3%		
SRA	100%	0%	100%	0%		
CV			94%	6%		
PITS			83%	17%		
UI					100%	0%
DVS					100%	0%

However, on the negative, these comments were recorded:

- I have learnt nothing from this simulation (BCFS1);
- It was such a waste of time (BCFS1);
- Whilst it might look like an interview, it does not require a student to do any actual interviewing and therefore doesn’t teach us any skills which can be related to dealing with clients in person or the actual practice of law (CV2);
- A bit slow and dull. Doesn’t feel like a real interview (PITS2);
- Real experience differs. Expectation to think without the answers/references in front of you is harder (DVS3).



Conclusion

One of the most interesting aspects is that the range of results is quite large. Given that the case studies varied quite widely on a range of attributes including university, discipline, student level (postgraduate/undergraduate), level of integration with the curriculum, level of use of the eSimulation within the course and student body, this is not too surprising. The issues with the survey instrument also could have caused some of the variation. However, even examining the survey results at a qualitative level, we can see some trends as to what benefits the use of eSimulations can generally bring.

Three questions in particular gave a strong indication that these aspects were perceived positively by the students. They were:

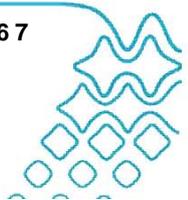
- Bringing to life abstract topics and relating them to the practice of profession;
- Practicing the kinds of learning expected in the unit/subject;
- Reflecting more on the role that I will undertake in my profession.

The results to these three questions give us an indication that the use of eSimulations in the case studies are good at presenting practical topics to students and putting them into the practice of their professional role.

A second set of questions provided quite a strong indication. The questions were:

- Providing access to experiences that were outside the normal university teaching environment;
- Using simulations was a valuable way of learning concepts and skills that would be difficult to experience in a real work place;
- Providing learning that will be useful in an actual workplace;
- The simulation sustained the student's interest;
- The student was engaged with the simulation experience.

These questions support the result that students perceive the eSimulation as placing them in their professional role in a way that normal University educational experiences do not. It also indicates that overall, students found the use of eSimulations to be engaging and interesting, which is a necessary pre-condition for them to use them as a learning tool.



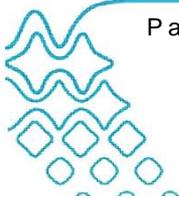
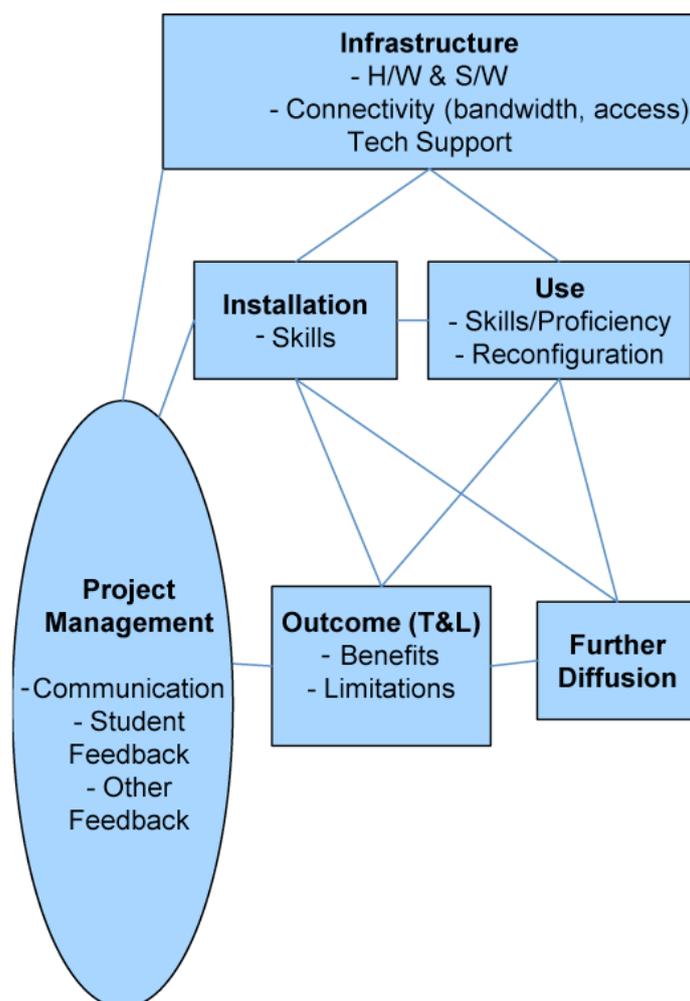
Appendix H: Phenomenological study of the blog entries

Data was collected from blog entries posted by nine ALTC members, involved with various aspects of eSimulations, in the three participating universities – Deakin, RMIT, and Charles Sturt University. The postings were made in a time period of 2 weeks and participants articulated their own experiences with various aspects of the projects (refer to Appendix G for the set of blog questions to which responses were made). The postings were in response to 27 questions that were included in the blog.

The analysis of the blog entries was supplemented by a team focus group session that took place during Project Conference 2 held at Deakin Waterfront in November, 2009.

To analyse the experiences of project members, phenomenology was employed, as it is geared towards a qualitative examination of narratives from project participants with the aim of generating meaning and relationships between the statements made by team members while articulating their experiences (Moustakis, 1994; van Manen, 1990).

The key issues identified from the blog entries can be categorised according to the following codes:



Infrastructure

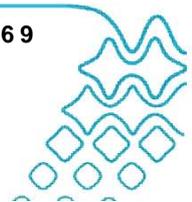
Responses related to the infrastructure required to support eSimulations in the participating institutions, spanned issues including the requirements for hardware and software, connectivity, the availability of technical support and the development of a repository of knowledge (or an experience base).

The eSimulation infrastructure was first established at Deakin University through the acquisition of character builders, characters, and voices, which required dedicated servers. The Information Technology Services Division at Deakin provided server support and 'standard' network services. Project members found software features (at the back-end) complex and these were discarded from the final version of the eSimulation application. At Deakin, the project team members were able to gain the support of the central IT division, but this was not the case at RMIT and CSU. At RMIT, in particular, project team members encountered obstacles, due to the institute's risk-averse policy, enforced by the IT division. In the earlier stages of eSimulations, RMIT students were unable to access the simulations off-campus.

The eSimulation application also called for relatively high-powered PCs that were capable of handling the enhanced graphical requirements associated with reconfiguration. Reflecting upon the implementation of the actual eSimulation software, there were problems with implementing eSimulations within Deakin's partner institutes in the ALTC project. Various aspects of the simulations, such as the characters and voices, needed re-tweaking in order to be launched and used at the partner institutions.

The project team members at CSU and RMIT also held the view that there was a need for a dedicated team of personnel, with the required expertise, to provide technical support in all the stages of eSimulation adoption, from installation to continued reconfiguration. Such a level of technical support was gradually made available at Deakin University, including eSimulation experts, drawn from the faculty and IT support, all of whom were project team members. One of the suggestions was the establishment of an independent consulting body to assist academics in participating institutions in the installation and use of the applications.

The establishment of a knowledge repository for the capture and dissemination of project experiences was considered to be of significant importance for the future diffusion of eSimulations. An attempt at generating some form of 'benchmarking' was also deemed essential for knowledge transfer and exchange. This was also expressed through the apparent lack of documentation surrounding the set up of the technical infrastructure and installation of eSimulation software for use by instructors. One of the obstacles standing in the way of effective knowledge transfer was the relatively high level of technical skills that are required of participant instructors to install and use eSimulations. It was suggested that the repository should be designed to capture the state chart transition models and XML scripts that were mastered by project team members at RMIT. There is an intention to write a handbook of instructions and tips and hint to this effect by Deakin project team members, pending the allocation of adequate resources.



Installation of eSimulations

Installation was cumbersome for some of the project team members as a consequence of the non-availability of adequate resources (see Infrastructure). The possession of a significant level of technical skills was considered important in the installation of eSimulation applications. The software suite was tied to a particular computer, which prevented the possibility of joint reconfiguration of the application by project team members at a particular university. It was difficult to get the applications running seamlessly when they were installed on servers at RMIT. Extra time and effort had to be devoted into getting the applications up and running. Installation in partner universities was also hindered by licensing issues pertaining to the characters.

eSimulation use

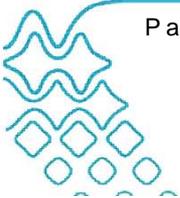
The actual use of eSimulations was similarly constrained by the availability of adequate resources and the possession of technical skills by individual project team members. In addition, project team members also viewed the ease of reconfiguring the various aspects of the eSimulation (characters, voices, scenarios, look-and-feel) as a highly important issue in the continued use of eSimulations in teaching and learning.

To be used as a teaching and learning tool, the eSimulation applications need to be fine-tuned to meet the objectives of a course, which requires a relatively high level of technical skills in understanding and modifying the XML scripts. Script development was cited as the 'hardest' part of eSimulation reconfiguration. In addition, the limitations of the Media Semantics character builder, in terms of the ability to manipulate the physical movements of the characters, were highlighted by a project team member intimately involved with writing scenarios and redeveloping the eSimulation application. Flexibility to use naturally recorded voices as an alternative to simulated voices and use of other languages in the dialogue (for use in off-shore campuses) were suggested.

Indeed, according to a project team member at RMIT:

The software to be used to implement simulations poses major problems if it is to be promulgated as a means by which the individual academic can be empowered to produce their own simulations. The products are fantastic, but the technical overhead, for academics other than those with significant prior IT proficiency, prohibits academics generally coming to grips with the development tools and environment.

Most project team members believed that there was a need for a user-friendly authoring tool to manipulate the characters, change the script, alter the scenario, and implement other modifications, without having to employ a sophisticated level of XML scripting skills. In fact, without such an authoring tool, the diffusion of eSimulations, particularly to non-IT academic departments, was thought to be difficult. Furthermore, the absence of such a tool would prove to be cumbersome for future evolution of eSimulations amongst current participants as the continued need for considerable time and effort in modifying and fine-tuning the various aspects of eSimulations would put a strain on the use of the application. The other alternative, it was suggested, was to put in place a team of dedicated personnel with the required expertise, as was undertaken at Deakin University, to assist academics with modifications and enhancements, which would necessitate larger budgetary allocations from the universities (see Infrastructure). The ability to make changes to the eSimulations, with relative ease, was also deemed important in view of presenting new scenarios, reflecting events in the real world, to students each semester.



Outcomes (Teaching and Learning)

The ALTC project outcome was viewed as largely favourable in that the primary Teaching and Learning (T&L) objectives were met. The simulations were used together with more conventional modes of T&L. The simulations largely enhanced the learning experiences of students as was intended as part of the project objectives. The simulations enabled instructors to present their students with scenarios emulating real-life situations they are likely to confront in their professional careers. Despite the inherent difficulties associated with installing and reconfiguring the applications, most project team members highlighted positive outcomes in the T&L environment. The use of simulations also revealed new and alternative approaches to teaching and assessing students. The use of eSimulations at CSU in training police personnel also proved to be effective.

However, there were issues with students not being able to access the eSimulations off campus (or with a delay between sound and lip movement), inability of RMIT-Vietnam students to follow the dialogue, and the inflexibility of movement with some of the characters. It was believed that by overcoming some of the limitations of eSimulations in terms of physical movements of the characters and dialogue, the learning experience of the students could be further enhanced. There was also a need for the characters to develop a 'memory' based on the sequence of events taking place within the simulation and beyond, which necessitates the ease of reconfiguration. One project team member recorded live voices and used them as speech for the characters. Students at RMIT-Vietnam had difficulties with following the 'synthetic' speech of the animated characters. Others indicated that the questions were predefined and not representing the spontaneity with which an interviewer should ideally engage a subject/client.

Further diffusion of eSimulations

Some of the difficulties associated with installation and use could affect the further diffusion of eSimulations to include new academics. The required level of technical skills and proficiency could discourage the uptake. In terms of infrastructure, the availability of adequate technical support and a comprehensive knowledge repository was considered essential for an expanded user base to be established amongst the academic community. However, the project team members expressed satisfaction in their promotion of eSimulations in various forums and events at their respective universities.

Project management

Communication amongst project team members has been satisfactory, despite the failure to initially participate in the blogs. As well as the formal fortnightly teleconferences and the meeting in Geelong, project team members stayed in touch informally and updated each other.

Regarding student surveys, some project team members were of the view that the instrument provided adequate feedback, whilst others complained about misinterpretation and survey fatigue from students. Also, the need for a formal knowledge repository (or 'experience base') was called for as part of the future infrastructure development to support eSimulations.

Student feedback was gathered by means of standard survey questionnaires administered to students who used eSimulations as part of their assessment. The survey confirmed the positive experiences with their learning, though misinterpretation of survey questions and survey fatigue were cited as factors behind some of the less-positive



feedback. Of course, the positive feedback was focused on their learning experience, but not at their enthusiasm with the state of the eSimulation technology (i.e. they were not excited by the animations or aesthetics of the graphics). Other qualitative modes of feedback elicitation, such as focus group sessions, observations, and blogs entries have been cited as possible ways of gaining additional sound feedback from students.

Key findings and recommendations

Support infrastructure for new adopters

One of the major recommendations regarding the future course of action with regards to eSimulations is the establishment of a formalised support infrastructure, aimed at assisting new adopters with a range of issues and services, from licensing and installation, to reconfiguration of the eSimulations and training. This could also be pointing at the setting up of a quasi-helpdesk service.

Institutional support for eSimulation development

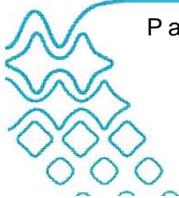
The development of eSimulations first at Deakin University and its customisation at RMIT was enabled by the high level of technical skills and expertise of some project members, who devoted effort beyond their allocated workload to writing XML scripts and customising the software. Their continued involvement in the further development of eSimulations would require support at the institutional level.

Knowledge transfer repository

Deakin University has been at the forefront of the ALTC eSimulations project, and considerable know-how resides in the organisation. The capture and dissemination of this knowledge is a prerequisite to the establishment of the Support Infrastructure. Furthermore, all project members should continue to capture their experiences with subsequent eSimulations. The contents of the repository should not, however, be confined to project member experiences with infrastructure issues only. Experiences of project members related to actual teaching through eSimulations need to be included. Feedback from students also forms an essential component of this repository. The blog was considered a first step in the process of setting up this mechanism.

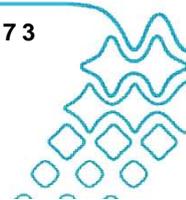
Alternate applications

The urgency of the need for a dedicated support infrastructure can be reduced through the deployment of alternate eSimulations software that offer a smooth learning curve and minimal requirements for technical skills and expertise from project members. Such software can be deployed, used and reconfigured with relative ease.



Appendix I: Reference group

Name	Position
Dr Cathy Gunn	Ex-president, Australasian Society for Computers in Learning in Tertiary Education (ASCILITE) University of Auckland
Professor David Murphy	President, Open and Distance Learning Association of Australasia Director, Centre for the Advancement of Learning and Teaching (CALT) Monash University
Associate Professor Piet Kommers	Faculty of Behavioral Sciences University of Twente, The Netherlands
Ian Dennis	President, Australian Computer Society, Victoria Chairman, Centre for Innovative Industry Economic Research Inc.
Stas Lukaitis	Executive committee member, Australian Computer Society, Victoria Chair, Branch Professional Development, Australian Computer Society, Victoria Senior Lecturer, Business Information Technology and Logistics RMIT University
Dr Deborah Bunker	Senior Lecturer, Discipline of Business Information Systems, Faculty of Economics and Business University of Sydney



Appendix J: Independent audit report

Report of the independent evaluation of the project *Building academic staff capacity for using eSimulations in professional education for experience transfer*

Conducted by Dr Di Challis, *Challis Consultancy*, on behalf of the Australian Learning and Teaching Council (ALTC) at the request of Deakin University

June, 2010

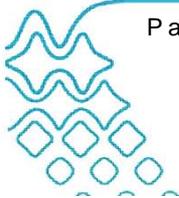
1. Executive summary

Three universities (Deakin, Charles Sturt and RMIT) collaborated on this project, each with a distinctive approach to flexible learning in the professions. Deakin, the lead institution, had already achieved a demonstrable capacity to effectively build and use technologies to simulate 'professional experiences' across multiple faculties and professions and had committed strategic funding to successive projects from 2000. Their approach deliberately focussed on capacity building to disseminate quality teaching through innovative educational technologies. The partner institutions were well positioned to build on the Deakin experience, so extending the range of use of eSimulations (eSims).

Action learning and action research underpinned this project with a comprehensive evaluation framework outlined in the Project Proposal. For reasons discussed more fully below, the full framework was not implemented and, as the project developed, it appears that the emphasis was on the technology and authoring processes entailed in developing the eSims rather than evaluation and research. Given the demands of developing the eSims – generally much greater than had been anticipated – and the imperative to develop eSims for trial, this is understandable but the reduction in the use of rigorous evaluation of student experience transfer review, in particular, at a time when the insights gained could be used to inform the next cycle of eSims development, is unfortunate. As the Final Report indicates, student opinion was sought throughout the project but this was restricted to student surveys and much analysis was delayed until quite late in the project. These findings, however, are undeniably important and should make a strong contribution to the research and publication intended after the formal completion of the project.

It is probable that the most important outcome of this project is that it reveals to the sector what can be involved in teaching and learning through eSimulations. The interest and enthusiasm of the project team, their pedagogical and technical skills, and the very considerable efforts of specific staff directly involved in the development and the teaching are readily evidenced. What also emerges is that a broadening of eSimulations beyond a small quite devoted group is demanding and often difficult. Those interested in exploring this approach should find much of value regarding the pedagogical value-adding of teaching this way and the Guide should provide considerable assistance in the design of scenarios. As technologies advance, especially authoring software, some technical difficulties faced by some of the project participants will dissipate and this reinforces the value of dealing with the educational as well as the technical, as this project does. Very importantly, the project should assist the higher education sector, especially within Australia, but also internationally, to know what questions need to be asked and what issues need to be resolved, prior to committing to eSimulations.

Probably the true test of the success of this project will be the extent to which eSims are seen as good practice in the higher education sector within the next 5 years. The proposals to disseminate the findings – most especially through the Guide and the book publication as well as the website – will be important outcomes.



2. Evaluation and the role of the independent evaluation auditor

The Project Proposal (p7) stated this 'evaluation audit' would be an 'impact evaluation' that would "focus on institution functions of the eSimulations from the perspective of the professions' point of view" to determine "whether the knowledge, skills and attitudes learned in the context of instruction transfer to the intended context". However, it is later stated (p7) that the reference group, representing the professional bodies, were able to, and would, assess "the effectiveness of experience transfer in their respective domains of expertise". The evaluation brief made no mention of any contact with the reference group and the discussion with the core members of the project teams confirmed the role, as stated on p7 of the Project Proposal, was to judge "the overall success of the project". While the impact of the project is a recognised core element of the project's success, the scope and allocated time commitment of this evaluation militated against a direct analysis of the eSimulations from the professions' point of view.

This independent audit was conducted to test the extent of the project's achievements against the following indicators of success:

- a) There was a shared understanding of, and institutional commitment to, the project
- b) Team members welcomed the opportunity to be involved and sustained enthusiastic involvement; they felt confident of their own contributions and their opportunities to contribute and valued the contributions of others
- c) The project was efficiently and effectively managed

Leading to:

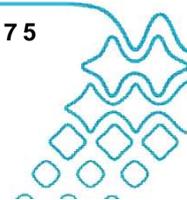
- d) The stated objectives of the project were met: Outcomes.

As evaluation was embedded into this project and action learning and action research were critical elements by which to determine whether the project had met its objectives, the audit paid special attention to evaluation. While involved solely in the summative stage, the other cycles of evaluation (formative and effectiveness) were scrutinised (see below). It is noteworthy that several of the project team stated that they would have found the interviews undertaken towards the end of the project (March 2010) very helpful towards the middle of the project where they could have had time to apply some of the insights they felt they had gained from the discussion, with the process revisited at the end.

To determine the extent to which each of the indicators of success was achieved the independent evaluator:

- Undertook a review of the documentation related to the project
- Interviewed all members of the project team (14)
- Prepared and administered a survey (see Appendix 1) prior to the interview which was used as part of the interview for the 13 respondents who felt they could complete it.
- Sent supplementary questions to the project manager to clarify apparent inconsistencies in data derived from the team members' interviews

The evaluation brief did not include contact with the reference group, academic teaching staff outside of the project group who had taught with the eSims developed as part of this project, members of the relevant professional bodies or students.



3. Indicators of success

3.1 A shared understanding of, and institutional commitment to, the project

Discussion with the team members supported the conclusion that the three universities were keen to make the project work. The project leaders at each of the three institutions were enthusiastic about the project and indicated in interview that the respective institutions allocated adequate resources and overtly encouraged participation.

Project team members were asked to rate the extent to which they believed that senior-level executive and institutional support were in place for this project. This is an area where perceptions were polarised with the same number (3) considering the support was there to a minimal extent and a maximum extent, with the majority opting for ‘a moderate extent’ (see Table 1). It is noteworthy that a specific rating is not necessarily tied to one university.

Table 1: Perceived level of executive and institutional support

	N/A	0	1	2	3	4	5
Ensuring senior-level executive and institutional support for the project							

Code:

N/A Not applicable (as far as the individual team member was concerned)
 0 To no extent 1 To a very low extent 2 To a small extent
 3 To a moderate extent 4 To a large extent 5 To a very large extent
 Green = CSU Blue = RMIT Red = Deakin

Those who gave a ‘5’ rating justified it by citing people and actions; those who rated this at ‘1’ pointed to strong local support for the project but did not feel this translated to institutional knowledge of, and support for, it.

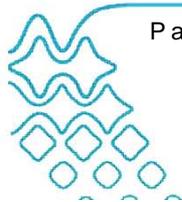
From the interviews, two concerns regarding shared understanding emerged:

- *The contribution of the partner institutions*

While specific partner contributions were agreed to and documented in project meetings and there was consensus that each would be involved in local developments and trials of the eSims, that both would both contribute ‘substantial’ and ‘expert’ action research expertise and design of educational evaluations was not something mentioned in interview and, one could reasonably conclude, was not seen as the substantive contribution anticipated by Deakin and outlined in the Project Proposal (p2). Prompting revealed some instances of modest contribution but the fact that the survey tools were sourced from elsewhere and, when efforts to capture reflection through blogging failed, remediation strategies did not come from either of the partner institutions, is telling.

- *Key elements of the project outcomes*

This is illustrated by the difficulty most team members had in differentiating between the first two project outcomes (see Appendix 1) and, where a differentiation was made, this varied in emphasis and intent. Most team members were confident and comfortable about what proposed outcomes in developing capacity in eSims involved at the very local level, but, from that point, ‘your context’ was variously understood as ‘my eSims’, ‘my School’ to ‘my university’ and ‘the universities within the project’ with ‘more broadly’ being construed as ‘my faculty’ to ‘higher education globally’.



3.2 The project was led and delivered by team members who welcomed the opportunity to be involved, who felt confident of their own contributions and their opportunities to contribute and who valued the contributions of others

The project reinforces the often reported conclusion that much of the success of such activities depends on the attributes of the project team, those who will formulate and then lead the project and those who will implement the proposal – in this case, those who designed, developed, built and taught the eSims.

For any such project to succeed, it is vital that the members of the project team are keen to participate and that the team has the appropriate mix of skills, expertise and experience. All members of the project team, by statement and tone of voice, indicated this was a project that engaged them and, for most, it came at a time when they had a sufficiently strong background in the technology and pedagogy of eSims to understand the issues involved and equip them to take the next steps. For staff at the partner institutions “This seemed exactly what we were talking about”; “Oh, wow! This is what I want”. The fit was there for most of the project team members. In the one case where the person concerned felt they were ‘an observer’ rather than a participant and “in a sense the wrong person to be involved”, others saw value in their involvement (limited though it undeniably was) and there were indications that their involvement will bring benefits to their institution.

A high level of interest was sustained by most team members as evidenced by most allocated tasks being met in a timely fashion, good meeting attendance and from interview comments. Everyone interviewed was keen to discuss the project and candid in their comments. It is salient that many of the key players were looking forward to ongoing developments and continuing shared endeavours when the project formally ended.

Project members were asked to assess their level of satisfaction with their own involvement and also the opportunities they had to contribute: see Table 2.

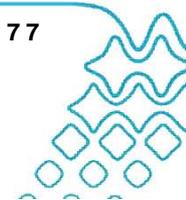
Table 2: Perceived level of satisfaction

	Satisfaction with own involvement										Satisfaction with opportunities to contribute											
	0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10
DU								X	XX	XX				X			X				X	XX
RMIT					X		X	XX	X	X						X					XXXX	X
CSU				X	X					X							X		X			X

Scale: 0=totally dissatisfied; 10= totally satisfied

10 of the 14 rated their involvement, and their opportunities to be involved, at ‘7’ or above. Where opportunities to contribute were constrained, with the corollary that staff tended to be less satisfied with their own contribution, this tended to be because of unexpected personal circumstances with team members stressing this was not a factor of the project. In one case reduced involvement was attributed to the focus of the project changing (from conceptual to technical) and, for them and some others, their contribution was targeted to specific times and areas.

The leadership was described as ‘devolved’ and there was a good understanding of the areas each person assumed and considerable respect for the contributions each of the 4 member core team at Deakin made. For a leader at one of the partner institutions it “was all about change management and distributed initiatives - planting the seeds”. This had the undoubted strength of empowering some staff members to a level of achievement well beyond what they or others had anticipated, and of sharing responsibility and workload. Such a model also has the deficit that, where potentially



difficult situations emerged (in this project, difficulties with evaluation), no one person feels they have the authority to deal with these decisively.

The Project Proposal (p7) identified a project leader at each of the partner institutions who would 'facilitate provision of resources to the project, fulfilment of the project goals, evaluation of results and their dissemination'. In reality, at the local level within the partner institutions, much of the success of the project was dependant on the work of a few individuals and some of those who were most heavily involved did express concerns about a perceived lack of IT support. The intention (as outlined in the Project Proposal, p7) was to set up project teams with educational designers and lecturers assisted by a locally sourced multimedia developer and project evaluation officer with local IT services support. These teams did not eventuate and the arrangements with IT services caused problems, especially delays. At CSU, the one educational technology designer involved in the project called on Deakin support and, while this was highly praised, would have appreciated 'more tech savvy people' locally to assist. At RMIT, the 5 staff members who developed the eSims worked together, taking on the roles of academic educational designer and technologist. They did not call on Deakin support but several indicated that they struggled with the technological demands and the time required dealing with them. While they remained committed to the project, several commented about the unexpectedly high workload. As with all such projects, the commitment of individual team members varied but there was sufficient commitment to ensure that a reasonable number of eSims was produced and taught.

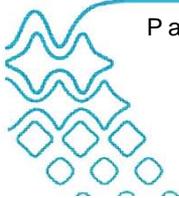
A stated aim of the project was to build a community of practice. The interviews and minutes of the project meetings support the conclusion that this was achieved for the project team. Several commented on how much they appreciated the contributions of others to their own developing practice and, also, how they felt their contributions were treated with respect and valued.

3.3 The project was efficiently and effectively managed

The efficient and effective project management of this project was ensured by the appointment of an able and experienced project manager. Her knowledge of the sector, key people involved and the lead university were recognised as real advantages. All members of the project team spoke highly of the project manager and attributed much of the perceived success of the project directly to her. When asked to rate the extent to which the project management was systematic and carefully planned, 9 of the 13 responses indicated this was a 'very high extent', with a further 2 stating this was to a 'high extent' and the other one giving a '3' or moderate rating on the basis of time delays and the failure to implement some aspects of the evaluation.

The effective and efficient management is evidenced by the following:

- the positive language team members used to assess her work: eg 'fantastic'
- establishment of a realistic timeline with related tasks
- the ability to respond constructively to changing circumstances
- the early notification of meeting agendas
- the timely, accurate and comprehensive notes of meetings
- detailed and accurate record keeping and timely reporting
- efficient and effective budget monitoring
- the rigorous follow up of matters that was done in such a way as to gain the required outcome without forfeiting cooperation.



Other areas related to but not restricted to project management were:

- *Ensuring effective and sustainable communication within and external to the project team*

There was a high degree of confidence that this had been achieved within the project team (11 of the 13 responses) but discussion revealed less certainty regarding the extent of the communication with other parties, especially the reference group.

- *Ensuring effective and continuous collaboration and communication with project partners*

The majority (8 of the 13) considered this was a minor challenge for the team. Some early difficulties were resolved by the project manager's decision to hold meetings alternately at Deakin and RMIT. Practical considerations precluded having such meetings at CSU where, although the project meetings were valued, a sense of distance remained. Communication with the project partners was seen by a few as something that took effort but, because of its recognised importance to the success of the project, worthwhile.

For practical reasons, the project management role was enlarged to incorporate evaluation coordination. This coordination role was construed in terms of organisation and management of the evaluation, with evidence of good work and outcomes. However, the role was not construed as leading the evaluation, where there is evidence of significant gaps:

- The promised documentation of the formative evaluation (see Project Proposal, p6) did not eventuate.
- The lack of the timely delivery of a new student evaluation tool.
- The initial reliance on a survey instrument that received critical feedback and was heavily dominated by respondents to one eSim.
- The delay in the receipt of the Wave 1 Evaluation Report from ACSPRI, which compromised the action research cycle as the opportunity to evaluate, apply learnings and re-evaluate the eSims and the survey tool across semesters was lost.
- The lack of incorporation of other methods beyond surveys to capture student response. For instance, suggestion of focus group discussions with students to identify and assess the key pedagogical elements of the eSims (ideally with someone external who had good knowledge of the areas, facilitation skills and no input to assessment) was met with "Why didn't we do that? It would have been so useful!"

As the Final Report and Guide show, the project team members recognised these problems, responded appropriately and gained important learning from the experience to share with the sector.

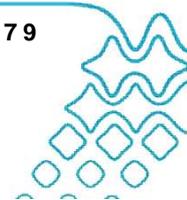
3.4 Outcomes

a) Capacity building

For Deakin, the project was essentially about capacity building and knowledge sharing initially with the two partner institutions and then the sector. The intent was they would become effective users and creators of eSims for their own teaching, resulting in a wider palate of rich exemplary models of eSims to provide students with learning experiences based on real world professional experience which they could then transfer to the workplace. The project was seen as enhancing Deakin's reputation, but also putting eSims on the higher education agenda.

For the two partner institutions, the fundamental desired outcome was to create a catalyst with a modest number of really interested people. In this way capacity would be built across the institution and students would benefit.

Any assessment of the extent to which the goal of building capacity was achieved depends on one's expectations of what was desirable, and then realisable, within the scope of the project.



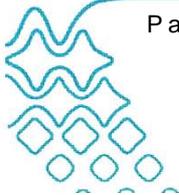
Indisputably the project actively involved very few people at the partner institutions in terms of actually developing eSims (essentially one person at CSU working across two areas in the same faculty and four at RMIT in two disciplines in the same School) – a tiny number in the context of the entire staffing at either university. Student numbers are also low: 36 in total at CSU and just over 300 at RMIT. When eSims at Deakin are included, over 1500 additional students are involved but the cohort is, again, drawn from Business so limiting the range of the professions exposed to eSims as a direct consequence of this project. However, when the short time of the project, its pilot nature and the level of direct and in-kind funding that went to the partner institutions are taken into account, it is reasonable to see the level of involvement and commitment of these staff, and their resultant eSims, as a creditable outcome. Further, at each of the 3 universities, a growing number of people have seen eSims demonstrated and expressed an interest in involvement. At each, project team members cited instances of further eSims development in the immediate/short-term future which should include incorporating eSims in international curriculums.

At both partner universities, there is a real and demonstrated interest in eSims and a greatly increased understanding of what is involved in their successful development and deployment. There is evidence of a clear realisation of the technical requirements and impediments and the capacity within the two universities to promote eSims more broadly. At none of the three institutions does the prospect of institutionalising eSims appear to be a reality but the project did not set out to achieve this, nor, most would argue, would this be desirable. Rather, the project has embedded eSims to the extent it is 'part of the furniture' in a few discrete areas that have been well chosen for sound pedagogical reasons with a demonstrable match between teaching and learning outcomes, academic staff interest and expertise. As, and when, other institutions incorporate eSims, such considerations will be critical. Further, the areas chosen have meant there are a useful number of exemplars with some valuable differences in intent, content and style (the 'expanded range and types of eSims' as stated in the project objectives) with students being given opportunities to become immersed in, and engaged by, the real-life experiences the eSims draw on.

The project demonstrated that there is a high barrier for entering a program to develop eSims. Unless institutions can provide the technical support outside of the teaching areas, academic staff using the authoring tools available for this project need considerable technical knowhow as well as design and discipline skills. When staff who have been involved in similar endeavours for lengthy periods express dismay and concern about how demanding the eSims development was, the complex and demanding nature of eSims development is further evidenced. Further, staff do not work in isolation and the IT infrastructure, in particular, is critical to the success of such projects. The Final Report makes important points in this regard and the Guide, while highlighting the diversity of emerging perspectives, offers useful advice and strategies to support all aspects of eSims development. These should be significant contributions to the capacity building that is the core of this project.

A stated project objective (see Appendix 1) was to develop capacities in developing and using eSims through action research and action learning approaches. Several team members pointed to the reflection they undertook as part of the team meetings as important elements of action learning and cited instances where this impacted on eSim design. While efforts were made to capture team members' views as the project developed, the blogging proved unsuccessful and the project was at risk of relying on the anecdotal impressions of staff expressed in meetings. However, in response to this situation the team set in place effective strategies that included a phenomenological analysis and the development of an online knowledge transfer collection tool. These strategies helped inform the team's final deliberations and the study's findings are reported in The Guide.

As the Final Report states and evidences, formal surveying of students was undertaken throughout the project. However, the strong impression received from the interviews with the team members, supported by the documentation and discussed above, is that such surveying, although comprehensive, was not used in the way intended by the Project Proposal, ie as part of an action



research cycle. Most team members were candid in their assessment that the action research cycle had failed – or, at the minimum, been compromised - and so generally rated the achievement of that objective as low to modest: see Table 3. There was, significantly, a shared sense that evaluation/research would continue after the project’s formal ending and that the staff involved would continue to reflect on their experiences and so continue to grow in understanding.

Table 3: The development of capacity through action research and action learning approaches

PROJECT OBJECTIVE	N/A	0	1	2	3	4	5
Develop capacities across your university in the development and use of eSimulations through the use of action research and action learning approaches	Green			Green	Green	Red	Blue
	Red			Blue	Blue	Red	
				Red	Blue		
					Red		

Code:

N/A Not applicable (as far as the individual team member was concerned)

0 To no extent

1 To a very low extent

2 To a small extent

3 To a moderate extent

4 To a large extent

5 To a very large extent

Green = CSU Blue = RMIT Red = Deakin

Those who held a contrary view, pointed to the reflection revealed and continued in the project meetings with some averring that capacity would be developed as the evaluation data were analysed and interpreted and this would extend beyond the formal project.

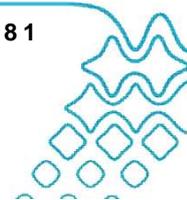
b) Enhancing teaching and learning

Project members frequently made the point in interview that the project would validate eSims as a transformative instrument through their facilitation of real-world professional experiences. The first two stated project objectives – albeit variously understood as mentioned above - as well as the third (see Appendix 1), linked the development of the eSims with definite pedagogical outcomes. Professional experiences in the real world would be used in the eSims to allow a transfer of these learned professional experiences and capabilities back to the real world of professional practice.

Academic teaching team members expressed confidence that student learning had been enhanced by the eSims and pointed to improved assessment responses and classroom activities and to student comment as evidence of this. They illustrated learning outcomes from students working with eSims that were directly linked to the professional needs of their courses. Occasionally, the seeking of student opinion by surveys was mentioned, but there remained a definite emphasis on the anecdotal and informal. As experienced educators, their belief that their eSims did allow the transference of real world professional experiences has value. As Table 4 conveys, the dominant response was that the project had achieved these outcomes to a large extent.

Table 4: The achievement of project objectives related to enhancing teaching and learning

PROJECT OBJECTIVE	N/A	0	1	2	3	4	5
Facilitate the ‘transfer’ of professional experience (in the real world) to student learning experiences in a university setting via an expanded range of types of eSimulations					Green	Green	Red
					Blue	Blue	
					Red	Blue	
						Blue	
						Red	



Facilitate student learning experiences in a university setting via eSimulations to encourage the 'transfer' of learned professional experiences and capabilities to the real world	Red				Blue	Green	Blue
					Red	Green	Blue
					Red	Blue	Red
						Blue	
						Red	
Build capacities in the development in the use of eSimulations created locally by university academic and professional staff to facilitate real-world learning experiences	Red			Blue	Green	Green	Blue
				Red	Blue	Blue	Blue
						Blue	Red
						Red	
						Red	

Code:

N/A Not applicable (as far as the individual team member was concerned)

0 To no extent

1 To a very low extent

2 To a small extent

3 To a moderate extent

4 To a large extent

5 To a very large extent

Green = CSU Blue = RMIT Red = Deakin

While problems with the formative evaluation discussed above did not allow the data to be used to inform the intended action research cycle, a valuable outcome of the project is the data collected by surveys is reported in The Final Report and Guide and the results are available also on the project website. A further important outcome is the revised student survey which should be of assistance to those undertaking further evaluation and research in this area.

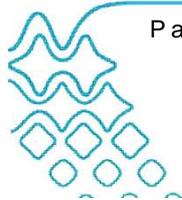
c) Diffusion and dissemination

Diffusion (ie to spread widely to reach a large area) is almost inevitably outside of the time constraints of such a project as this and, as argued above, probably the true test of the success of this project will be the extent to which eSims are seen as good practice in the higher education sector within the next 5 years. To reach a larger audience than this pilot it is important that realisable dissemination strategies are conceptualised and realised in a timely manner. Project team members spoke authoritatively of the dissemination strategies they had from the outset to promote the embedding of findings and outcomes and could cite these (see Final Report for detail in this regard), but most were aware that the immediate gains outside of their context were modest as reflected below: see Table 5. However, it is highly probable that in the short term these strategies will lead to significant outcomes.

Of these, the intended book publication – a major academic output of the project – involving project team members, external universities and international experts, should bring the project’s findings to a broad audience. Its international nature, and the international contacts that have resulted from and/or been strengthened by this project as outlined in the Final Report should be significant steps towards diffusion.

Table 5: The achievement of project objectives related to dissemination

PROJECT OBJECTIVE	N/A	0	1	2	3	4	5
Disseminate eSimulations: a) within your context	Red			Blue	Green	Green	Red
				Red	Red	Blue	
						Blue	
						Blue	
						Blue	



b) more broadly	Red		Blue	Red	Green	Blue	
	Red				Blue	Red	
					Blue		
					Blue		
					Red		
Propagate a national community of practice in eSimulations		Blue	Red	Blue	Green		
		Red		Blue	Green		
				Red	Blue		
					Red		
					Red		

Code:

N/A Not applicable (as far as the individual team member was concerned)

0 To no extent

1 To a very low extent

2 To a small extent

3 To a moderate extent

4 To a large extent

5 To a very large extent

Green = CSU Blue = RMIT Red = Deakin

A stated aim of the project (p3) was to foster communities of practice in eSims and it is probable that the project team will continue as their own community of practice beyond the project. This is far more realistic than an expectation that a national community of practice would be achieved within the life of the project and the assessment of half of the project team that no or low gains have been achieved so far in this regard seems justified. Those who held a more positive view in this regard claimed that significant engagement has been achieved with several high profile eSims people and other eSims technologies. While embryonic, a community of practice in this small field in a small population like Australia may well be achievable and the book publication, with international participation and an anticipated global audience, will broaden this community.

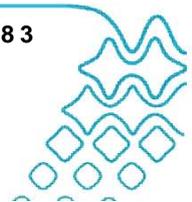
4. Conclusion

This evaluation (p2) identified specific indicators of success and has assessed the project against these. Within the time and budget constraints of this project, the project team members worked assiduously to meet their stated goals. While this audit determined there were some areas where the project did not proceed as intended, these were recognised and the project team put remedial strategies in place.

Significantly, this project has worked to seed developments in eSims in the partner institutions and, in doing so, has increased our knowledge and understanding of their impact on tertiary education, particularly within the professions. The resultant Guide should prove to be a valuable addition to the literature, with further useful information stemming from this project being available on the project website.

It is reasonable – and, indeed, a valuable result - that some of the major outcomes of this project will occur beyond the time of this project’s funding. The book publication, in particular, should act as a vehicle for nurturing and capturing the value of national and international relationships with interested parties, and as a stimulus to developing new relationships. It has made, and should continue to make, a contribution to developing a sense of community or, at least, a network of interested parties in the sector, regionally and further afield.

Hence this project should make a significant contribution to our understanding of the role of eSimulations in tertiary professional education and what is involved in building academic staff capacity in this area.

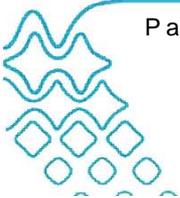


Appendix 1: Pre interview survey

1. Project objectives

Using the code below, please mark the appropriate box to indicate your impression of the extent to which each of the following project objectives has been achieved. Code: N/A Not applicable (as far as you are concerned) 0 To no extent 1 To a very low extent 2 To a small extent 3 To a moderate extent 4 To a large extent 5 To a very large extent							
PROJECT OBJECTIVES	N/A	0	1	2	3	4	5
Facilitate the 'transfer' of professional experience (in the real world) to student learning experiences in a university setting via an expanded range of types of eSimulations							
Facilitate student learning experiences in a university setting via eSimulations to encourage the 'transfer' of learned professional experiences and capabilities to the real world							
a) Develop capacities across your university in the development and use of eSimulations through the use of action research and action learning approaches							
b) Share capacity building approaches with the other two universities involved in the project and with the rest of the sector							
Build capacities in the development in the use of eSimulations created locally by university academic and professional staff to facilitate real-world learning experiences							
Disseminate eSimulations:							
a) within your context							
b) more broadly							
Propagate a national community of practice in eSimulations							

Please add any comments here:



2. Key learnings and challenges

[Adapted from *Operational learnings of ALTC project holders*, December 2008]

Using the code below, please mark the appropriate box to indicate your impression of the extent to which each of the following has been achieved (for Learnings) or faced (for Challenges): Code: N/A Not applicable (as far as you are concerned) 0 To no extent 1 To a very low extent 2 To a small extent 3 To a moderate extent 4 To a large extent 5 To a very large extent							
KEY LEARNINGS	N/A	0	1	2	3	4	5
Ensuring senior-level executive and institutional support for the project							
Having effective dissemination strategies in place at the outset which promote the embedding of findings and outcomes							
Ensuring effective and sustainable communication and collaboration within and external to the project team							
Systematic and carefully planned project management							
Continuous and critical reflection on the project progress and capacity for flexibility with regard to project management, activities and outcomes							
<i>Please specify (and rate) any other learning not listed above</i>							
KEY CHALLENGES	N/A	0	1	2	3	4	5
Staff recruitment and staff turnover on the project team							
Ensuring project recognition, endorsement and uptake							
Dealing with unexpected costs and delays							
Managing ethics approvals							
Ensuring effective and continuous collaboration and communication with project partners							
<i>Please specify (and rate) any other challenge not listed above</i>							





Promoting excellence in higher education

PO Box 2375 Strawberry Hills NSW 2012 Australia

Telephone 02 8667 8500 Facsimile 02 8667 8515

www.altc.edu.au

ABN 30 109 826 628