



E-Health (Health Informatics) Graduate Program External Review Report

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Executive Summary

This report summarises the findings and recommendations of the External Review Committee established to perform an external review on the E-Health (Health Informatics) Graduate Program.

The members of the external review committee were:

Chris Keen	University of Tasmania
Carolyn McGregor	Head, Health Informatics Research, University of Western Sydney
Alex Holt	Director, Health Informatics Program, University of Otago, New Zealand
Graeme Murrell	Former student

The course review meeting was undertaken in September, 2006 with the University of Tasmania's Chris Keen as chair. However, as a result of his resignation from the University, Dr McGregor assumed the role of chair of this committee in March, 2007 to enable the completion of the External Review report.

Within this report, the terms of reference for the external review are presented and the findings and recommendations of the review are presented within the context of these terms of reference.

To assist with future external reviews, the external review panel recommends that future course review self assessment documents prepared should follow the structure of the terms of reference established for that external review. This will greatly assist the review panel in their assessment and the preparation of their final report.

The commendations and recommendations of the report are summarised below:

Commendations

- The Department of Rural Health are to be commended on their efforts to grow this course from within their department and thereby demonstrate its significance and importance as a strategic tool for the University. The Post graduate Diploma in HI (with distance taught advantages) is unique for Australia. UTAS has a great product. This is supported by a good textbook edited by Ms Whetton.
- The Department of Rural Health are to be commended on their efforts to provide a leading edge health informatics course with strength in the area of socio-technical issues.
- The Department of Rural Health are to be commended on their establishment of a course producing quality graduates in Health Informatics.
- The Department of Rural Health are to be commended on the provision of a course and associated that have been rated highly by students.
- The Department of Rural Health are to be commended on their efforts to provide courses that offer flexibility and choice for students.
- The Department of Rural Health are to be commended on the standing of the academics associated with this course.
- The Department of Rural Health are to be commended on their efforts to be a leader on the social-technical health informatics research. This has laid a solid foundation upon which a documented strategic research plan can now be developed.

Recommendations

- The University, Faculty and Department need to revisit the strategic significance of this program as a nucleus for flagship interdisciplinary courses in the area of Health Informatics in association with the School of Information Systems, School of Computing, School of Medicine, School of Nursing & Midwifery, School of Pharmacy and Rural Clinical School and provide a higher strategic profile to such endeavours. In association with this the course location needs to be assessed to ensure its maximum contribution to the University of Tasmania strategic plans.
- Recommendation: The University, Faculty and Department should consider the commercialising some of the units for CME across Australia, USA and elsewhere.
- The University, Faculty and Department in association with the School of Information Systems need to develop a marketing strategy for University of Tasmania Health Informatics related courses that engages key stakeholders and provides links with existing University of Tasmania undergraduate programs
- The Faculty and Department in association with the School of Information Systems and external collaborations should review the current course content with the view of including/updating content in areas including (but not limited to) patient journey modelling, data mining, security and privacy.
- Recommendation: The University, Faculty and Department need to commit resources to the establishment and ongoing management of relationships with key stakeholders so they may provide input to the course content and also support the completion of the course by their staff.
- The University, Faculty and Department need to commit resources to the establishment and ongoing monitoring and evaluation from a quality perspective of this course.
- The Faculty and Department should create a pathway with the completion of Graduate Certificate as a gateway to the Graduate Diploma.
- The faculty and Department should consider offering Health Informatics related units to undergraduate students in the School of Information Systems, School of Information Systems, School of Computing, School of Medicine, School of Nursing & Midwifery, School of Pharmacy and Rural Clinical School.

- The Faculty and Department should investigate the new functionality available with new version of Web CT namely Campus Edition, and reevaluate whether this new functionality would now support their requirements for flexible learning.
- The Faculty and Department should consider the use of UTAS network of 12 rural health teaching sites for a low maintenance version of the HI course, especially the non-award professional development courses.
- The University, Faculty and Department should prepare a staffing strategy that supports the long term viability and quality of delivery and support for this course. This could include the use of PhD students from related disciplines to assist with teaching.
- The Faculty and Department should develop a 5 year research plan in association with the School of Information Systems, School of Computing, School of Medicine, School of Nursing & Midwifery, School of Pharmacy and Rural Clinical School, that will clearly defines areas within which the University/Faculty/Department seek to become a leader/extend their leadership in the field of health informatics research. Further this research plan should speak to the dissemination of this knowledge within this program and those related programs within the School of Information Systems, School of Computing, School of Medicine, School of Nursing & Midwifery, School of Pharmacy and Rural Clinical School. For example through the introduction of new units or the redevelopment of existing units.

Terms of Reference

The External Review was performed under the following terms of reference:

1. The extent to which the purpose and objectives of the course articulates and contributes to strategic plans
2. The extent to which the structure, content, methods of delivery and assessment are appropriate to meeting program objectives
3. The extent to which the structure, content, methods of delivery and assessment foster the generic attributes of graduates
4. Current and future student demand, strategic recruitment, retention and progress through the course; and the quality of students entering and completing
5. The extent to which achievement of the program objectives results in the development of appropriate knowledge and skill bases and provides appropriate preparation for entry to the emerging field of health informatics
6. The quality of the program in relation to the perceptions of peers in the Australia and international scholarly communities and industry stakeholders
7. the implementation and effectiveness of current policy for monitoring and evaluating quality and adequacy of the current method
8. The Department's and Faculties plans and procedures for improving the program
9. The adequacy of infrastructure and resources required to offer the course
10. The number and qualifications of academic staff teaching the program, and their links with health informatics or related professional communities
11. The Department's and the Faculty's plans and procedures for improving the research Profile associated with this program

1. The extent to which the purpose and objectives of the course articulates and contributes to strategic plans

The linkages with the goals of the Department, Faculty and University as detailed in the Course Review 2002-2006 (ph 3) document are:

- *Community, Place and Change and Frontier Technology: Health informatics is a key area that is rapidly gaining importance in relation to changing models of health care delivery and health service management. The E-Health (Health Informatics) program therefore contributes to the University theme areas Community, Place and Change and Frontier Technology since health informatics facilitates the innovative delivery of health care using advanced information and communication technologies. This has the potential to create a more effective and efficient health care service which will in turn impact positively upon the community well-being. The program is listed as a strategy within UDRH goal 4 (UDRH will enhance its teaching and learning activities and curriculum development in the area of rural health through strategic collaborations.*
- *The course actively seeks to promote efficiency in teaching, adopting a collaborative, multi-disciplinary approach. The course is online, flexible and draws on expertise across health, computing, information systems and legal disciplines from within and outside the University of Tasmania. The collaborative nature of the course is one of its strengths and is helping to embed the course at national and international levels.*
- *The program actively fosters the development of strategic alliances and partnerships with interstate and overseas universities engaged in health informatics education and research. During the establishment of the existing graduate program, strong links have been established with a number of institutions, including LaTrobe University (Australia), the University of Otago (New Zealand) and Excelsior College (United States).*

- *Since health informatics is a relatively new discipline with major players still emerging, there is considerable opportunity for the University to establish itself as a leader in the field in both teaching and research.*

These linkages demonstrate the Department's commitment to operate this course within the context of a strategic plan. However, there is little detail in relation to the profile of the course at a University level. This view is further evidenced in this same document (pg 31) through a perceived weakness of the course of a:

- *Low profile of the program within the Faculty/University: the program has a low profile within the Faculty and University. This is due, at least in part, to the demands on staff within the program and subsequent restriction on their capacity to develop links with other schools and Faculties interested in the area. It may also be partly influenced by the physical and virtual location of the program.*

Commendation: The Department of Rural Health are to be commended on their efforts to grow this course from within their department and thereby demonstrate its significance and importance as a strategic tool for the University. The Post graduate Diploma in HI (with distance taught advantages) is unique for Australia. UTAS has a great product. This is supported by a good textbook edited by Ms Whetton.

Recommendation: The University, Faculty and Department need to revisit the strategic significance of this program as a nucleus for flagship interdisciplinary courses in the area of Health Informatics in association with the School of Information Systems, School of Computing, School of Medicine, School of Nursing & Midwifery, School of Pharmacy and Rural Clinical School and provide a higher strategic profile to such endeavours. In association with this, the course location needs to be assessed to ensure its maximum contribution to the University of Tasmania strategic plans.

2. The Extent To Which The Structure, Content, Methods Of Delivery And Assessment Are Appropriate to Meeting Program Objectives

The objectives of the program as reported in the Course Review 2002-2006 document are:

The educational objectives of the program are:

- To produce graduates who understand the application of information technology and advanced telecommunications technology.
- To create an awareness of the increasing role and potential of information technology and advanced telecommunications technology for effective and efficient health services, particularly for rural, remote and housebound consumers.
- To foster an awareness of the social, ethical and legal issues associated with the introduction and use of information technology and communications technology.
- To provide health professionals and others with the theoretical and practical knowledge that will enable them to take leading roles within the emerging field of Health Informatics.

In addition to the above educational objectives, this proposal has the following strategic objectives:

- To foster and develop strategic alliances and partnerships with interstate and overseas universities through collaborative course structure.
- To create a post-graduate program that will become recognised as demonstrating excellence in relation to the health informatics field and in use of online technologies as a learning medium.
- To foster and develop a research program which will see the University/Faculty/Department become a leader in the field of health informatics research.

The external committee has found that broadly, the course structure, content, methods of delivery and assessment are appropriate to meeting program objectives.

Further assessment and recommendations relating to course content are detailed in the discussion relating to Terms of Reference point 5.

Further assessment and recommendations relating to course methods of delivery are detailed in the discussion relating to Terms of Reference point 9.

Recommendation: The University, Faculty and Department should consider the commercialising some of the units for CME across Australia, USA and elsewhere.

3. The Extent To Which The Structure, Content, Methods Of Delivery And Assessment Foster The Generic Attributes Of Graduates of the University of Tasmania

The University of Tasmania has determined the following desirable generic attributes for its graduates:

- Knowledge
- Communication Skills
- Problem Solving Skills
- Global Perspective
- Social Responsibility

Section 2.3 of the Course Review Report 2002-2006, contains detailed information of the current program objectives as they relate to generic graduate attributes and these as stated are supported by the external review committee.

The external committee has found that broadly, the course structure, content, methods of delivery and assessment are appropriate to fostering the generic attributes of graduates.

Further assessment and recommendations relating to course content are detailed in the discussion relating to Terms of Reference point 5.

Further assessment and recommendations relating to course methods of delivery are detailed in the discussion relating to Terms of Reference point 9.

Commendation: The Department of Rural Health are to be commended on their efforts to provide a leading edge health informatics course with strength in the area of socio-technical issues.

4. Current and future student demand, strategic recruitment, retention and progress through the course; and the quality of students entering and completing

Section 3.1 of the Course Review Report 2002-2006, contains detailed information of the demographics of current and past students. The external review committee noted that the majority of students were aged 30-50 and were predominantly located in NSW and Tasmania. The external review committee further propose that the age demographic will be an ongoing niche for this course that should be promoted to continue to support life long learning within this age bracket now and into the future.

The external review committee also noted that the course has a lower than average attrition rate for external courses.

In the opinion of members of the external review committee, there exists an untapped market of related businesses, equipment and service providers together with graduates from other disciplines such as computing and IT and social work that has the potential to grow student numbers.

Course completion and unit grade results confirm the quality of the students entering and completing the course.

While section 5.6 of the Course Review Report 2002-2006, contains detailed information of the Marketing strategy for the course from September 2005 through April 2006, not future marketing strategies were presented.

Commendation: The Department of Rural Health are to be commended on their establishment of a course producing quality graduates in Health Informatics.

Recommendation: The University, Faculty and Department in association with the School of Information Systems need to develop a marketing strategy for University of Tasmania Health Informatics related courses that engages key stakeholders and provides links with existing University of Tasmania undergraduate programs

5. The extent to which achievement of the program objectives results in the development of appropriate knowledge and skill bases and provides appropriate preparation for entry to the emerging field of health informatics

Section 2.3 of the Course Review Report 2002-2006, contains detailed information of the current program objectives as they relate to generic graduate attributes and these as stated are supported by the external review committee.

In reviewing the course content, the external review committee noted, as was also noted in the submission from the School of Information Systems, there exists opportunities to expand and update the offerings of this course to provide a much broader skill set for the graduate. Of most importance to the external review committee is inclusion of content in the areas of patient journey modelling, data mining, security and privacy.

Commendation: The Department of Rural Health are to be commended on their efforts to provide a leading edge health informatics course with strength in the area of socio-technical issues.

Recommendation: The Faculty and Department in association with the School of Information Systems and external collaborations should review the current course content with the view of including/updating content in areas including (but not limited to) patient journey modelling, data mining, security and privacy.

6. The quality of the program in relation to the perceptions of peers in the Australia and international scholarly communities and industry stakeholders

The Course Review Report 2002-2006, states (pg 7) as a strength that:

This program is one of the few that specifically focuses on the interplay between the health care environment and the systems used to manage information in that environment. As such, the program has been a leader in exploring socio-technical issues within health informatics.

This position is supported by the external review committee.

The Course Review Report 2002-2006 (pg 31), contained the following perceived weakness of the course in relation to perceptions and relationships with industry stakeholders which are supported as a weakness by the external review committee:

- *Relationships with key stakeholders: the limited involvement of key stakeholders, particularly employer groups, is a weakness of the program. Stakeholder input increases the expertise and resources available for developing the program, ensures graduates have the relevant skills for the health care environment and ensures stakeholder support for the program. It also creates a vehicle for the dissemination and discussion of academic research and debate.*

This weakness was further evidenced after consultation with Gary Hulme, representing DHHS and who is currently a member of the course advisory committee. Mr Hulme stated that the DHHS had not engaged adequately with the university and need to promote the course more internally.

Commendation: The Department of Rural Health are to be commended on their efforts to provide a leading edge health informatics course with strength in the area of socio-technical issues.

Recommendation: The University, Faculty and Department need to commit resources to the establishment and ongoing management of relationships with key stakeholders so they may provide input to the course content and also support the completion of the course by their staff.

7. The implementation and effectiveness of current policy for monitoring and evaluating quality and adequacy of the current method

Section 3 of the Course Review Report 2002-2006 contains information relating to the enrolment, attrition and progression rates for this course. The external review committee noted that the majority of students are aged between 30 and 50 years with a large number residing in NSW and Tasmania.

The external review committee also noted the lower than average attrition rate for the course.

Section 4 of the report contains details relating to unit evaluation. As stated, evaluation of units has not been consistently carried out due to the low numbers of graduates. In addition the SETL evaluation of the course in 2003 data was from only two students

The external review committee noted that the course and units are rated highly by students.

Commendation: The Department of Rural Health are to be commended on the provision of a course and associated that have been rated highly by students.

Recommendation: The University, Faculty and Department need to commit resources to the establishment and ongoing monitoring and evaluation from a quality perspective of this course.

8. The Department's and Faculties plans and procedures for improving the program

The information provided in the Course Review Report 2002-2006 together with further verbal information provided to the external review committee demonstrated the Departments commitment to seek to improve this program.

The ability of the Department and Faculty to improve this program however, is heavily impacted by several current infrastructure and resourcing issues as detailed in the discussion relating to Terms of Reference point 9 within this report.

9. The adequacy of infrastructure and resources required to offer the course

The Course Review Report 2002-2006, contained the following perceived strengths and weaknesses of the course in relation to infrastructure and resources which are supported as strengths and weaknesses by the external review committee:

Strengths

Perceived strengths of the program include:

- *The pathway structure offers flexibility and choice to students, catering for different learning styles, different access and skill levels with information technology and varying health care environments. The ongoing contact and support with students must be a significant factor in the ability of many to meet the requirements of study, work and family commitments.*
- *Academics involved in the program have maintained high standards for responding to student queries and return of assessment tasks. As indicated by student response, this is appreciated.*

The external review committee supports these claimed strengths.

Weaknesses

Perceived weaknesses include:

- *Running the courses concurrently increases administration requirements, but with no clear benefit as all students enrol in the same core units in the first year of the program. Statistics also indicate that a number of students who did not complete the Graduate Diploma did successfully complete their first year of study – or the equivalent of the Graduate Certificate. If all students initially enrol in the Graduate Certificate program and then apply for the Graduate Diploma should they wish to extend their study, retention rates should improve and all students who complete one year of study will receive an award.*

- *Offering all units over five semesters, while providing flexibility for students, places heavy demands on staff, particularly the coordinator who has significant input to a number of units and course administrator who has taken on responsibility for re distribution of materials, liaison with IT re passwords, fielding student queries and other administrative issues*
- *The program materials are located outside the University WebCT/Vista system since this course management system does not easily incorporate the current pathways format. While this limits access to WebCT features such as discussion boards and assignment submission, student responses clearly indicate that the current program structure is a desirable feature of the program. It is therefore preferable to remain outside of WebCT/Vista until the software can accommodate the pathway format.*
- *IT support: demands on IT staff within the UDRH limit means that support is currently limited to maintenance of the health informatics web site with little opportunity for innovation. Yet academic staff identified a number of interactive elements which, if implemented, would enhance the flexibility and support available for students. A designated fractional IT support position would facilitate ongoing maintenance, development and innovation.*

Commendation: The Department of Rural Health are to be commended on their efforts to provide courses that offer flexibility and choice for students.

Recommendation: (1) The Faculty and Department should create a pathway with the completion of Graduate Certificate as a gateway to the Graduate Diploma. Further, the Faculty and Department should create a pathway with the completion of Graduate Diploma as a gateway to many associated Masters programs within the University of Tasmania.

(2) The faculty and Department should consider offering Health Informatics related units to undergraduate students in the School of Information Systems, School of Information Systems, School of Computing, School of Medicine, School of Nursing & Midwifery, School of Pharmacy and Rural Clinical School.

(3) The Faculty and Department should investigate the new functionality available with new version of Web CT namely Campus Edition, and reevaluate whether this new functionality would now support their requirements for flexible learning.

(4) The Faculty and Department should consider the use of UTAS network of 12 rural health teaching sites for a low maintenance version of the HI course, especially the non-award professional development courses.

10. The number and qualifications of academic staff teaching the program, and their links with health informatics or related professional communities

Section 5.4 of the Course Review Report 2002-2006 provides details of the academic staff involved with this course. As that document states, of note is the fact that *all positions are non profiled staff positions funded from the UDRH grant funds. This creates some vulnerability for the long-term future of the program since, at this stage, the UDRH grant does not extend beyond June 30, 2008.*

Currently staffing issues are further summarised in the Course Review Report 2002-2006 weaknesses which include:

- *Non- profiled positions: enrolment patterns suggest that the program is viable but its long term future is problematical due to a lack of profiled positions. Allocation of a fractional profiled position(s) would ensure the ongoing program, subject to sufficient enrolments. These could be academic, administrative and/or IT positions.*
- *Responsibility for the program continues to fall heavily on the course coordinator. This is a strength in that she has been instrumental in developing the socio-technical perspective of the program and her significant involvement enables that perspective to remain strong. However if the course coordinator is unable to continue her involvement with the program, this will create some issues. As student numbers increase, and as content within each unit is refined, additional academic time will need to be allocated. This, of course requires that there be adequate student numbers. As this occurs, it would be desirable to broaden the disciplinary base of academics involved in the program*

The external review committee agree that staffing through non-profiled positions poses a significant exposure for the University of Tasmania.

Section 2.5 of the Course Review Report 2002-2006 provides details of the standing of the academic team within the health informatics community and the external review committee supports the claim that the academic team has high standing in the socio-technical aspects of health informatics.

Commendation: The Department of Rural Health are to be commended on the standing of the academics associated with this course.

Recommendation: The University, Faculty and Department should prepare a staffing strategy that supports the long term viability and quality of delivery and support for this course. This could include the use of PhD students from related disciplines to assist with teaching.

11 The Department's and the Faculty's plans and procedures for improving the research Profile associated with this program

As stated in the Course Review Report 2002-2006, one of the strategic objectives of the course is:

- *To foster and develop a research program which will see the University/Faculty/Department become a leader in the field of health informatics research.*

The report does not contain details relating to the research profile associated with this program. However, members of the external review committee are aware of the health informatics research with a socio-technical focus currently being undertaken by Ms Whetton. This research has led to the publication of a book edited by Ms Whetton in this area which is used within the course. Thus providing evidence that efforts have been made to enable a research profile to be associated with the program.

In addition, further information from the School of Information Systems has indicated via a submission to the external review panel, that the school currently has much activity within the area of health informatics related research.

Commendation: The Department of Rural Health are to be commended on their efforts to be a leader on the social-technical health informatics research. This has laid a solid foundation upon which a documented strategic research plan can now be developed.

Recommendation: The Faculty and Department should develop a 5 year research plan in association with the School of Information Systems, School of Computing, School of Medicine, School of Nursing & Midwifery, School of Pharmacy and Rural Clinical School, that will clearly defines areas within which the University/Faculty/Department seek to become a leader/extend their leadership in the field of health informatics research. Further this research plan

should speak to the dissemination of this knowledge within this program and those related programs within the School of Information Systems, School of Computing, School of Medicine, School of Nursing & Midwifery, School of Pharmacy and Rural Clinical School. For example through the introduction of new units or the redevelopment of existing units.