How an Evidence-driven Audit Cycle Model Can Be Used to Assist Quality Assurance in Environmental Health Education

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In Australia, there is a wide range of undergraduate and postgraduate courses that address environmental health issues. Universities are responsible for delivering programs of sound quality to students, and employers of university graduates have expectations of the competency of those graduates to meet professional standards. In addition to these QA activities, the Australian Institute of Environmental Health (AIEH) accredits courses whose graduates are eligible to apply for membership of AIEH and practice as environmental health officers. This paper describes the development and pilot testing of a continuous, evidence-driven audit cycle of university course quality assurance (QA) activities for the Bachelor of Public Health (Environmental Health) program at La Trobe University. When implemented, this cycle can reduce the peaks in University QA activity to a more even and continuous process, while ensuring that all reporting requirements are met, including external and internal QA requirements and AIEH accreditation requirements. The main outcome of this project was an evaluated, conceptual model that streamlines quality processes, and a reflective checklist that ensures the ongoing QA cycle process is continued in a timely manner regardless of staff changes or structural reorganisation. Other universities might consider using this form of cycle to help ensure the quality of Environmental Health education.

Key words: Curriculum; Quality Assurance; Environmental Health

To meet current and emerging needs of environmental health professionals in Australia there is a wide range of undergraduate and postgraduate courses that address environmental health issues. There are eight environmental health undergraduate courses in Australia at present and all are at various stages of accreditation with the Australian Institute of Environmental Health ([AIEH] 2006). As recognised in the Environmental Health Symposium on Education, Research and Workforce:

Education, research and workforce are interrelated and development in each of these areas needs to build on existing links in order to strengthen environmental health education, research and workforce capacity. Workforce needs and information gathering through research will assist in guiding the direction for educational development. Appropriate and responsive education and research will in turn support workforce development (Commonwealth Department of Health and Aged Care 2000).

This quote illustrates the importance of designing vocationally based university courses to meet workforce competency requirements.

Universities are responsible for delivering programs of sound quality to students and are required to report the results of their Quality Assurance (QA) processes through the Australian Universities Quality Assurance (AUQA) audit process. Quality Assurance is a:

formal and systematic exercise in identifying problems in delivery, designing activities to overcome the problems and carrying out follow-up monitoring to ensure that no new problems have been introduced and that corrective steps have been effective (Lapsley 2000).
Both institutional accreditation (for example, accreditation of a hospital) and course accreditation (for example, accreditation of a program of study such as in teaching) are recognised and accepted components of QA (Lapsley 2000). In addition to university QA processes, some courses, which lead directly to professional practice, undergo accreditation with outside bodies, to ensure practitioners meet certain essential competencies for practice. This is often necessary in order for graduates of that program to gain professional recognition by the professional body representative of their discipline, for example, the role played by the AIEH in accrediting university programs whose graduates can gain professional recognition as Environmental Health Officers in Australia.

The university, industry and the wider community benefit from offering well designed and well structured courses, which directly meet the needs of new practitioners in the field. Well designed, high quality courses reduce the likelihood of student discontent or litigation. Students benefit because, upon graduation, they make a smooth and successful transition into professional practice, possessing the essential prerequisites in their field.

Academic and university administration staff need to be aware constantly of the parallel processes of university QA and external accreditation, to ensure that they have documented evidence of their ability to meet the requirements of each agency. Also, it is important to ensure that any alterations made to a course do not reduce their ability to meet quality and accreditation requirements. However, from an academic and course administration point of view, QA and course accreditation processes can be quite onerous to undertake, especially in terms of the preparation of documentation and the logistics of consulting with community and external experts in the field.

The introduction of a continuous evidence-driven audit cycle was considered to have the potential to reduce the peaks in QA and accreditation activity to a more even and continuous process. It was also seen to be of benefit in clearly documenting the requirements and stages of QA that need to be undertaken, even if there are personnel changes in course administrators and academic course coordinators, or university restructures. It allows for documentation and tracking of changes that are made to course content and delivery, such as changes made in response to an external accreditation review. In recognition of these challenges, and the recent focus on evidence based curriculum development that ensures that research evidence informs course development and forms an important part of quality processes (Greenhalgh et. al 2003), this project was designed to develop and pilot test an evidence-driven audit cycle model. The model was developed and based on published research evidence from the well respected and validated quality cycle proposed by Gray (2001) as shown in Figure 1.

This cycle was applied to the Environmental Health Stream of the Bachelor of Public Health as a case study, incorporating re-accreditation of the BPH(EH) by the AIEH in 2005. This paper deals with mapping and ordering the procedures of the cycle rather than reporting the specific details of data gathered or changes recommended by the AIEH. This article describes how the Quality Cycle was used to incorporate more order into existing QA procedures, to identify duplication and gaps in data collection procedures or types of data, and as a framework for deciding on the best sequence of activities to inform future planning. Thus the cycle can be adapted to any practice-based course offered by any Australian university.

The specific objectives of this project were to:

1. Identify the full range of relevant QA reporting requirements of the BPH, including those both internal and external to the University.
2. Map the requirements of varying review processes to identify common data needs.

3. Measure existing data gathering processes against the needs identified in phase 2.

4. Identify the changes required to current data collection procedures.

5. Initiate revised data collection strategies.

6. Re-audit to see if the change has been successful.

7. Develop a reflective checklist to assist future users to identify their ongoing needs.

The objectives were designed to correspond with Gray's validated quality cycle (2001), and were achieved sequentially. They provided an effective development framework for each phase of a new quality data collection cycle.

At La Trobe University a program of study such as the Bachelor of Public Health is referred to as a course that is made of major streams (such as Environmental Health or Health Promotion) and comprising a program of separate units.

In addition to the activities undertaken in this five-year data collection cycle, the Department had also been involved in the following University quality activities:

- Australian Universities Quality Agency (AUQA) Audit
• University Accreditation Process for New Courses
• Course Reviews
• Course Advisory Committee
• Unit Evaluation (Quality Assurance of Subjects - QAS)
• Unit Outline and Exam Moderation
• Student Evaluations of Teaching

Set standards and guidelines
For each of the quality activities listed above, there are a variety of data gathering systems and sources of information. The aim of this phase of the project was to map the various review processes and identify common (or overlapping) data needs, along with the optimal timing for information gathering.

There were some sources of data required for only one quality activity, for example, graduation and attrition rates were required only for internal course advisory committees. Other data collection needs were duplicated in a number of activities. For example, the AUQA audit, internal University course advisory committees and AIEH required documentation that demonstrated EH literacies and skills of graduates against the curriculum. AIEH accreditation, internal course advisory committees and course review procedures all required interviews with and/or written feedback from Alumni or Employer Groups. This phase of the project allowed us to identify all the data and documentation required to meet the needs of all quality activities.

Measuring practice against standards
During this phase, the actual practices, in terms of quality data collection procedures were tabled against the required QA standards/procedures for each type of review or audit (as identified in phase 2 of the project). Tables were compiled to indicate common areas of data collection between the QA processes, and document any gaps in data collection procedures.

Identification of areas that need to be changed
This phase analysed, in terms of the content of the course as well as the steps in the current QA processes and their sequencing, those areas that needed to be changed to streamline the QA process, avoid duplication, and to ensure a more even spread of data gathering over the cycle. In the development of this model, this phase was informed by internal and external data collection. As a result, a number of gaps in processes or accrued information were identified, the most significant being that although Health Promotion competencies were mapped against course content for the Bachelor of Public Health in 2004, it became evident that the AIEH literacies (competencies) also needed to be mapped against the Environmental Health stream content to measure practice against standards. Table 1 shows a sample unit map showing the unit objectives along with the corresponding health promotion competencies and environmental health literacies.

This phase also identified the invaluable capacity building that occurred within the Department as a result of having all staff (including administrative staff) involved in the mapping processes for this project. It facilitated information sharing, and raised awareness of the need to enable ongoing access to, and documentation of, the wealth of corporate knowledge into the one place.

Implementation of changes in practice
This phase involved the implementation of changed QA and data recording processes identified as deficient in the previous phase. In the pilot test of this model, the AIEH re-accreditation of the Bachelor of Public Health (EH) in 2005 was incorporated into the implementation phase. It involved, for example, revision of individual unit
objectives, revisions of course content and structure, revision of student assessment profiles, and mapping of Environmental Health literacies against unit outlines. This process identified the ‘ideal’ sequence for data collection and therefore also resulted in a revision in the order of activities in the Department’s QA data collection cycle.

Re-audit to ensure change has been effective
Re-auditing systematically reviewed the required changes to assess the quality and scope of implemented changes. All of the suggested changes from the previous phase had been incorporated or actioned. Recommended changes to the course were
documented and if, for example, changes were required to unit objectives to match better with required literacies or competencies, or workforce expectations, this would be audited to ensure that the changes were implemented in the unit outlines, on the subject database, in the handbook, and in the actual content of the teaching program. The revised QA data collection cycle is shown in Figure 3.

**Figure 3: Bachelor of Public Health revised data collection cycle**

Year 5
External review and accreditation from AIEH plus AUQA visit

Year 4
Course Advisory Committee

Year 3
Focus group discussions with students, graduates and employers

Year 2
Mapping of health promotion and EH competencies against curriculum and unit outlines

Year 1
Analysis of existing data around participation preferences, completion rates and 1st yr experience plan

Identify new aspects for audit if necessary

To ensure the ongoing QA cycle process is continued regardless of staff changes or structural reorganisation within the wider University, a reflective checklist and recommended quality cycle was developed (see Figure 3 for the revised data collection cycle). The reflective checklist for data gathering for the course/Department quality cycle is comprehensive and ensures that staff are aware of all aspects of data collection for external and internal review processes. If external reporting or reaccreditation requirements change then suitable amendments can be made to the Quality Cycle processes. For example, some of the questions on the reflective checklist from this project are provided in Box 1.

### Box 1: Reflective checklist

**Reflective checklist for data gathering for a course/Department quality cycle**

**AUQA -** When planning a Quality Cycle work backwards from this date. Are you prepared in advance?

**Do you:**
- Know the review date?
- Know what data will be required and how it will be collated?
- Need to brief the staff to engage them in the process?

**Do the course documents and course aims reflect the objectives of the strategic plan?**

**COURSE REVIEW COMMITTEE (INTERNAL)**

**Have you**
- Implemented the changes identified in previous reviews?
- Documented any changes in appropriate places, such as Course Document master copy, Unit data-base, Handbook and Unit Outlines?

**RE-ACCREDITION**

Is it necessary? - check with the external registering authority, such as the AIEH

**Are you aware of**
- The data requirements necessary to meet their terms of reference?
- What data has already been collected for other quality processes and can be assembled?
- What additional data is required?

**COURSE ADVISORY COMMITTEE**

**Complete the processes for a CAC in the year before the external re-accreditation in required because the data will serve both purposes.**

**Do you know**
- The data requirements necessary to meet their requirements?
- What data has already been collected for other quality processes and can be assembled for this?
- What additional data is required? Qualitative or quantitative?
- What data can be multi-used? (Can meetings with experts from the field, current and former students inform quality revisions in course focus, structure and content, and ALSO meet the requirements of the re-accreditation authority at the same time? Are there common themes?

**Does each unit grid**
- State the aims and objectives and record content and separate literacies/competencies?
- Get updated to reflect review recommendations and literacy/competency updates?

**DEPARTMENT REVIEW PROCESSES**

**Does Course recruitment and information material record the graduate attributes?**

**Does the Department maintain a data file of**
- A Quality Assurance (QA) plan indicating the frequency of QA for each unit?
- A Quality Assurance report for each unit to advise unit and course changes?
- A spreadsheet, updated annually with ENTER scores for enrolled students?
- Popularity Polls for the course, and completion rates?
- Course Completion data relevant to the course?

**Are QA reports available to students (such via the WWW)?**
Conclusion

The need for QA evidence is well accepted and is a requirement for all University courses. This project has linked with the University Strategic Plan and the Unit Level Planning and Review processes, which identify that the external professional and stakeholder expectations (such as AIEH registration requirements) must be integrated into the quality cycle. The main outcome is an evaluated conceptual model that streamlines quality processes, and can be adapted to a range of undergraduate courses across the University sector, regardless of discipline base. Use of the model has delivered an improvement in management processes because all staff in the Department are familiar with the expectations and purpose of various forms of data gathering, the tasks are spread more evenly across the five-year cycle, the processes are undertaken collaboratively, and the existing documentation is updated in a systematic manner. The model enhances recognition of the importance of professional competencies for universities and accrediting bodies, and of all stakeholders internal and external to the University.

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