

Developing online postgraduate coursework to promote change in animal industries

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Educational theories are increasingly demonstrating the significance of taking a participative approach to educational design, development and teaching. This participative approach extends beyond the experience of the student in the classroom (though it includes that as well) to the design of learning programs that consider learning on a larger scale than the individual – learning that extends to transforming organisations, professions, industries.

This paper reports on the commencement of an action research project attached to a new postgraduate coursework program in Animal Breeding Management. This online program is led by the need for animal industries to change practices in light of new knowledge and technologies in animal genetics and breeding.

Relevance to industry is not the only contributing factor in the project - university and government imperatives for efficiencies through collaboration mean that the project is being conducted collaboratively by the University of Sydney and the University of New England and is being managed and developed by a team consisting of academic specialists, an educational designer and a manager. Phase 1 of the project suggests that a participative approach to education requires the contribution and alignment of management, educational design, academic validity and identification of the need for change in industry.

Keywords: action research; postgraduate online programs; relevance to industry; collaborative learning; organisational change

Background/Aims

With substantial advances in genetic technologies and knowledge, the competitiveness of Australian animal production industries in a globalised agricultural economy is now dependent on industries' capacity to use innovative genetic techniques in animal breeding programs. To do this, industries need people available with advanced knowledge and skills in genetics and breeding program design who are also able to communicate these complex disciplines to producers and others, be influential and provide leadership in contributing to change in their industry. As a result of this need – a need identified by key industry organisations – the Universities of Sydney and New England are developing a jointly badged online postgraduate program in Animal Breeding Management (ABMgt), a global first in combining animal breeding and management training via postgraduate online coursework. The program aims to produce graduates who will contribute to industry as influential professionals in animal breeding, animal genetics and management.

This action research project has been initiated to encourage the team to critically reflect on the process as the development takes place and to document the project to provide a resource for future similar ventures at the universities involved and more widely in the tertiary sector. Action research was chosen as the appropriate type of inquiry as the team were looking for

a means of evaluating new initiatives and of developing validated conceptual models that can be used as a resource by educational practitioners working in similar settings with similar purposes. (Levy, 2003, p. 87)

We see this as a the systematic process of researching through planning and implementation of theoretical knowledge, reflection on and observation of practice, data collection and analysis and modification of practice on the basis of research (McNiff 2002, Stringer 2004).

The specific aims of this action research project are to:

1. Consider the interactive relationship between industry needs, scientific developments, graduate attributes and curriculum design in online postgraduate education in animal and veterinary science.
2. Evaluate collaborative and authentic online study as it relates to professional postgraduate learning, with particular reference to animal industries (see Herrington & Oliver 2000).
3. Reflect on a model for cross institutional collaboration in online postgraduate education

Beyond the project, the ABMgt program aims to:

1. Efficiently provide relevant, authentic and accessible postgraduate education that draws on the strengths and existing course material of two higher education providers
2. Enable the emergence of distributed knowledge in animal genetics, management and organisational change across animal production industries, including established animal industries like meat, wool, dairy, pig and poultry, and emerging animal industries such as aquaculture and crocodiles
3. Enhance the quality and frequency of the application of new knowledge and technologies in animal genetics and breeding across all animal production systems
4. Build a critical mass of animal breeding specialists who also possess the tools to conduct scholarly inquiry into leadership, management and organisational change to lead and work in teams that will transform animal industries

The intended primary outcome of the program is to contribute to national economic sustainability by positioning animal production industries competitively in a globalised agricultural economy. The action research project will also produce outcomes that will inform future developments in online postgraduate coursework for animal and veterinary sciences and for collaborating across institutions.

Conducting the ABMgt action research project

The members of the development team participating in the action research project are the program manager, a key academic from each university and the program educational designer. In order to incorporate critical reflection into our development, the project plan includes:

- Advice from end-users in the planning phase of the project via stakeholder consultation, liaison and a survey. This data informs the graduate attributes for the program and curriculum development
- Designing the program on the basis of existing experience, scholarship and research in online distance education
- Feedback at regular intervals from industry and academic colleagues on course design and content
- Formal processes for all participants in the project to reflect and provide feedback on their experience as students, teachers, designers and managers
- The modification of course components and practices as necessary on the basis of this feedback
- Ongoing advice from industry organisations, employers and other end-users during the delivery of the program about whether it is meeting current needs
- During course delivery, ongoing modifications on the basis of reflection on practice and other sources of feedback

Through action research, the project can attain quality outcomes and new practical and conceptual knowledge can be formed about professional education in animal breeding, which can then be used as a resource by educators in similar educational settings. (see Zuber-Skeritt 1992).

Levy (2003) suggests four key phases in action research:

1. Planning action and research

2. Taking action
3. (Re)constructing, evaluating
4. Theorising, disseminating

The project is currently (July 2006) nearing the end of Phase 1 and is being informed by reflections on a previous, similarly structured online postgraduate program in Veterinary Public Health Management (VPHMgt), developed in 2003 by the University of Sydney. Our action research project plan includes the following components within Phase 1:

- 1.1 Establishing cross-institutional project
- 1.2 Undertaking stakeholder consultation, researching the potential market, establishing graduate destinations
- 1.3 Developing graduate attributes, high level pedagogy (Goodyear 1999), instructional strategies, learning environment, curriculum design, learning resources and activities design
- 1.4 Profiling potential students – assumed knowledge, previous educational requirements, range of appropriate work environments

All team members are able to deposit relevant documentation for the project in a WebCT site. This site links to a Blog that functions as a collaborative research journal for the team.

Phase 1: Planning action and research

Our previous experience with postgraduate coursework has demonstrated that online classrooms designed and facilitated to promote collaboration, can afford the emergence of knowledge situated in the practice of a wide variety of workplaces (Toribio et al, 2005, Wenger and Snyder, 2000). Knowledge emerges in the activity of professionals at work (Allen, Otto & Hoffman, 2004) which, when learning is conducted collaboratively and online, is then positioned to emerge and develop in an academic setting. In industries as dispersed as veterinary and animal sciences, online postgraduate coursework enables accessibility to busy professionals working in any location.

In our planning of the ABMgt program, a participative approach to designing coursework requires us not only to design a mode of study that promotes student collaboration within authentic learning activities, but to engage with the industries for which skills are required. A participative approach to postgraduate coursework means that, in course design, we are as concerned about the outcomes for industries as we are for individual students and educational institutions (see Barab, Evans & Baek, 2004).

It is this aim that also motivates cross-institutional collaboration in the design and delivery of the program. Just as we wish to encourage a participative rather than competitive approach to learning amongst our students (see Sfard, 1998), we also wish to enable the emergence of knowledge construction from the practice of two institutions with a strong research background and existing coursework materials in animal genetics, breeding and leadership. The program is designed to draw on the research and educational strengths of each institution and to enable efficiencies that support the ongoing sustainability of the ABMgt program.

During planning, we have liaised very closely with key industry organisations Meat & Livestock Australia and Australian Wool Innovation, who are likely to be substantial financial contributors to the program. We have also had discussions with Dairy Australia and conducted a survey to capture the current issues for animal production in Australia. The results of this survey not only contribute to the design of a curriculum that addresses industry needs, but the conduct of the survey and ongoing liaison with these key industry stakeholders has become a two-way and iterative mechanism of communicating educational needs and human capacity between academic research and industry practice. In this way, stakeholder management is no longer perceived as only a mechanism for supporting the design and delivery of an educational program for optimum educational and financial outcomes, but is now an educational tool in itself, of value to all stakeholders - it recognises that not only our students are change agents in animal production systems. This commitment to learning on a larger scale than the individual is also reflected in the ways we liaise with industry in designing and promoting the ABMgt program.

The future of the project

The action research project will continue into three subsequent phases, described by Levy as Taking Action, (Re)constructing and evaluating and Theorising and Disseminating. It will include carrying out participant observation within the learning environment, cycles of stakeholder dialogue and debate, formal evaluation and integration of what we learn into future development and delivery of online postgraduate coursework designed not for only individual students but for industries.

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