Participative, Blended & Networked Learning:
Meeting Educational Needs in Australia’s Rangelands

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Australia’s Rangelands

The one region that will expand with Climate Change!
Rangelands Australia (RA)

- **Strategic response to a national need**
  - Rangelands important – Australia’s largest natural resource
  - Educational opportunities ‘out of touch’ with stakeholders needs
  - Existing programs either production OR environmental focus
  - Programs inadequate in …
    - People issues – management, leadership
    - Integration of economic & ecological theory and issues
    - Practicality & relevance to current and emerging issues, range systems

- **Challenges set**: ‘do things differently’, be demand-driven & student-focused.

* AgTrans Research, 1998
Overview

- Knowledge and Skills Needs
- Knowledge & Skills Gaps
- Alignment of Existing Programs with Needs
- Educational Processes and Outputs
  - Educational Design and Course Development
  - Blended Learning Environments
  - Flexible Delivery
  - Continuous Improvement
- Outcomes
  - Course Ratings & Feedback
  - Participation & Demographics
  - Impact
  - External Recognition
- Lessons and Challenges
- The Road Ahead
Educational Context

- Expectations of ranchers, advisers, NRM facilitators growing – need for professional development
- Complex problems … need to integrate disciplines and different types of knowledge
- Knowledge and skills reside in a diversity of sources
- Industry and governments recognized a need to build capacity for …
  - Profitable enterprises
  - Healthy landscapes
  - Vibrant communities
  - Change!
- Embed ‘triple-bottom-line’* and systems thinking

*Elkington, 1997
Supply and Demand Issues

Demand

- Knowledge and skills needs – 5-10 years out?
- Knowledge and skills gaps – especially re ranchers, extension staff, Landcare & regional NRM facilitators?
- Learner preferences?

Supply

- Alignment of existing programs with needs?
  (eg. Vocational, undergraduate & graduate levels)
- Alignment of existing courses with needs?
- How best to ‘add value’?
- Quality Assurance and Improvement?
Approaches

- Strategic, structured and parallel initiatives
- Social marketing\(^1\) - students at the center of decisions
- Social learning\(^2\) – nurturing a learning community
- Participatory processes\(^3\) - engaging a range of stakeholders (Experience, ‘Hard’ and ‘Soft’ Sciences)
  - Encourage involvement and ownership
  - Broker knowledge from a range of sources
  - Multiple perspectives
  - Facilitate development of a learning community

\(^1\) Andreason, 1995; \(^2\) Wegner, 1998; \(^3\) Zaphiris, Laghos & Zacharia, 2009
Knowledge and Skills Needs
Key Steps in the 24 Focus Groups

- Brainstorm current issues and challenges
- Presentation on Forces driving change, global and national trends
- Group defines the most likely scenario for their region in 10-15 years
- With the future scenario and a 5-10 year timeframe in mind, group defines:
  - Key personal attributes for individual success
  - Critical areas of knowledge for enterprise and community success
Focus Group Participants

- Ranchers/Pastoralists
- Government agencies (eg. Primary Industries, Natural Resources, Water, Mining)
- Research Organizations (eg. CSIRO, CRCs)
- Policy makers, Local government representatives
- Landcare, Regional NRM & Conservation groups
- Indigenous Land Corporation & Groups
- Service Providers (eg. Banks, Rural Suppliers)
- Other industries – Mining, Tourism, Defence
- Men, Women & Youth
Knowledge and Skills Gaps
... and priorities for course development

Surveys ... 325 responses ...

- Land managers/Ranchers
- Agency / Landcare/ Regional NRM staff

From the list of needs .... asked to identify areas for development in ‘most’ of the others and in themselves!

... both personal qualities and knowledge
What ‘most’ know enough about …

<table>
<thead>
<tr>
<th>Ranchers</th>
<th>NRM/Extension staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Livestock management</td>
<td>• Understanding natural resources</td>
</tr>
<tr>
<td>• Pest animals &amp; weed management</td>
<td>• Legislation &amp; regulations</td>
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<tr>
<td>• Basic bush skills</td>
<td>• Landscape functioning</td>
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<tr>
<td>• Cultural appreciation</td>
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Gaps in Knowledge

- Economic
- Environmental
- Social
- Over-arching
## Gaps in Knowledge

<table>
<thead>
<tr>
<th>Ranchers</th>
<th>NRM/Extension staff</th>
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<tbody>
<tr>
<td>Economic</td>
<td></td>
</tr>
<tr>
<td>• Marketing</td>
<td>• Marketing</td>
</tr>
<tr>
<td>• Business management &amp; planning</td>
<td>• Business management &amp; planning</td>
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<tr>
<td>• Sustainable production systems</td>
<td>• Sustainable production systems</td>
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<tr>
<td>• Diversification</td>
<td>• Diversification</td>
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<tr>
<td>Environmental</td>
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<tr>
<td>• Landscape processes &amp; function</td>
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</tr>
<tr>
<td>• Legislation &amp; regulations</td>
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<tr>
<td>• Understanding of natural resources</td>
<td>• Understanding of natural resources</td>
</tr>
<tr>
<td>• Environmental management systems/certification</td>
<td>• Environmental management systems/certification</td>
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<td>Gaps in Knowledge (cont’d)</td>
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<tr>
<td><strong>Ranchers</strong></td>
<td><strong>NRM/Extension staff</strong></td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td></td>
</tr>
<tr>
<td>• Recruiting, managing &amp; coaching people</td>
<td>• Cultural &amp; historical appreciation</td>
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<tr>
<td>• Communication, negotiation &amp; conflict management</td>
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<tr>
<td>• Self-awareness &amp; management</td>
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<tr>
<td>• Stakeholder values &amp; perceptions</td>
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<tr>
<td><strong>Overarching</strong></td>
<td></td>
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<tr>
<td>• Multiple-use management</td>
<td></td>
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<tr>
<td>• Forces driving change</td>
<td></td>
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<tr>
<td>• Property, catchment &amp; regional planning</td>
<td></td>
</tr>
<tr>
<td>• Systems/holistic management</td>
<td>• Basic field/bush skills</td>
</tr>
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</table>
Alignment of existing educational programs with needs

... based on content & delivery
Alignment of Australian Undergraduate programs* with Needs

*agriculture & environmental studies only

N= 156

% alignment with needs

# programs

Distance
Internal

100  67  50  33  0
Focus on Graduate Coursework

• Because ...
  ◦ Weak alignment of undergraduate programs & oversupply
  ◦ Diversity of previous educational experience of target group
  ◦ Specialized nature of the program
  ◦ Not training scientists – providing learning for relevance to everyday practice
Market for Learning in Australia’s Rangelands

- Research commissioned by Rangelands Australia and conducted by Quay Connection in 2002-03
- Based on a national telephone survey of 1400, 16-64 year olds living in the rangelands
- Defined and profiled 6 market segments on attitude to learning
Market Research

Outputs

• Segmentation of the market, profile of key segments … ‘Passionate learners’, ‘Job-driven’ & ‘Gunna’
• Understanding of the ‘Barriers to Learning’, Learner preferences and expectations

Influenced

• Learning materials - ‘e’ and ‘hard’ copy, readings
• Learning activities – authentic, ‘real world’
• Delivery – flexible in time and location
• Marketing … brochure, media, events …
Course Development Process

Outputs of the Focus Groups (collated)

- Scoping workshop (managers, advisers, researchers, others*).
  - Course structure / Key resources / Critical content
  - Educational Designer (ED) & writers*
  - Course framework / Learning Objectives

- Writers & ED
  - Draft
  - External reviewers*

- Editing / Desktop publishing
  - Learning Guide, Reflective Workbook and Book of Readings

*Total = 250 stakeholders engaged
Why an Educational Designer?

- Recognized the need for educational expertise... dealing with multiple perspectives, team of writers, non-educational expertise
- Address learning objectives, need for relevance and authentic learning activities and assessment
- Delivery options suitable for a range of needs and to foster interaction and networking
- Integrate and implement feedback, and ‘close the loop’
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Outputs of Processes

Over the past 7 years …

- Unique Graduate Coursework program for Professional Development in range science & mgmt
- 12 new range-specific, inter-disciplinary courses
- Blended learning environments
- Flexible delivery IN the rangelands
- Learning networks and community
Graduate Coursework Program in Rangeland Management

Core/compulsory courses

- Sustainable production systems and regions
- Building effective stakeholder engagements
- Global and national trends, local scenarios
Electives

• Grazing land management
• Advanced rangeland ecology
• Rangeland pest animals, weeds and biosecurity
• Property, catchment and regional planning
• Rangeland monitoring and adaptive management
Rangeland Management Program (cont’d)

Electives (cont’d)

• Animal welfare and health
• Animal nutrition and behaviour
• Managing self, developing and retaining others
• Diversification and new business opportunities
• Reading the rangelands – stakeholder perspectives
Blended Learning Environment

• Learning Facilitators NOT Lecturers
• Learning Management Systems - Blackboard
• Virtual classrooms- Wimba/Adobe Connect
• Tele/web-conferences and presentations

• Situated and authentic learning environments
• Intensive courses – face-to-face + online
Flexible Delivery

Two modes to suit Learner preferences:

1. **External/distance** – Study at home over a 12-14 week semester

2. **Intensive** - Study at a remote rangeland location. Pre-reading, 5 day workshop, finish assignments at home
Student Feedback

Course evaluations (average & range of scores - max 5.0)

- New skills and knowledge gained: 4.8 (4.3-5.0)
- Learning & assessment challenged me to think: 4.7 (4.3-5.0)
- Satisfaction with course content: 4.5 (4.3-4.8)
- Relevance to my work/business: 4.9 (4.6-5.0)
- Relevance to my future in the rangelands: 4.8 (4.6-5.0)
- Overall satisfaction: 4.7 (4.5-4.8)

Strengths
- “Relevance to rangeland systems across Australia”
- “Theory well grounded in practical field work”
- “Excellent course materials”
- “Interactions with the Learning facilitator & other students”
- “Challenge of the learning activities & assessments”
QA and Continuous Improvement

- Evaluations at all stages of the process
- Ongoing evaluations – courses & program
- Feedback on courses includes ‘closing the loop’
- Informed feedback from all stakeholders
- Informal feedback - role of Champions
Overall Outcomes

- Participation and Demographics
- Educational outcomes
  - Individual
  - Enterprise
  - Regional
- External recognition
Participation and Demographics

- Strong growth to 100+ students, 54 graduates
- 41% owner/managers of pastoral or mine-related enterprises – directly influence 2+% Aust
- 53% regional NRM/Landcare facilitators, extension agency staff, pastoral inspectors, training instructors, etc. – indirectly influence 45% Aust
- 65% women/35% men … all have a ‘day job’
- 10% Aboriginal people
- Age range 21-67 (most 30-50’s)
Educational outcomes - Individual

• Better understanding of the critical issues facing enterprises & regions
• Greater capacity to represent rangeland interests & advocate for enterprise and regional outcomes
• Willingness to consider other points of view & greater confidence in dealing with other stakeholders
• Expanded networks and greater thirst for knowledge
Educational outcomes - Enterprise

- More strategic & proactive, greater consideration of wider & long-term implications of decisions
- Better decision making, trade-offs & risk management
- Improved understanding of rangeland functioning and ‘best practice’ management
- Greater capacity for innovation/ managing change
- Enhanced land condition, biodiversity & water quality
Educational outcomes - Regional

• Stronger industry & community leadership
  ... more strategic, proactive
• Greater capacity for articulation & advocacy of regional issues
• Greater confidence & credibility to engage in NRM & influence local & regional decisions
• Greater capacity in Landcare and NRM groups
• Changing perceptions of University education
External Recognition

“Most valuable needs analysis in Australia”
(Australian Government’s FarmBis, 2005)

“...a highly strategic knowledge and skill development initiative ... that’s expanded effective educational opportunities “
(2009 Australian Rural Education Award)

“A strategic and systematic educational initiative ... high quality, challenging, practical and relevant learning ... transforming access, participation & representation of under-represented groups”
(2010 UQ Award for Programs that Enhance Learning)

“Outstanding contribution to the quality of student learning and the quality of the student experience of higher education ... ... a benchmark for others”
(2011 Australian Learning & Teaching Council Award for Programs that Enhance Learning)
Lessons and Challenges

- Lessons
- Value of the participatory approach – diversity, multiple perspectives, shared and co-learning
- Different understanding of ‘engagement’, ‘participation’
- Value of networks, social learning & learning communities
- Value of student-focused approach re attraction & retention of students
Lessons and Challenges

- Challenges
- Confronts traditional hierarchies & relationships
- Development of multi/trans-disciplinary courses
- Disciplinary arrogance & maintaining relevance to ‘management’ in research-intensive institutions
- Flexibility - Tension between student-centered and institutional-centric approaches to education
- Wider use constrained by Institutional processes & reward systems
Nationally and Internationally recognized Model of Innovative and Effective Education

The Road Ahead

- Revisiting the Needs
- Because of the networks and relationships, different approach – ‘e’ survey
- Maintaining responsiveness to provide Flexibility, Currency and Relevance