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

John A Taylor & Trish Andrews
Australia’s Rangelands

The one region that will expand with Climate Change!

Source:
NLWRA 2001
ABARE 2001
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
Focus Group - Places
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>
</tr>
<tr>
<td>• Basic bush skills</td>
<td>• Landscape functioning</td>
</tr>
<tr>
<td>• Cultural appreciation</td>
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</tbody>
</table>
Gaps in Knowledge

- Economic
- Environmental
- Social
- Over-arching
<table>
<thead>
<tr>
<th>Gaps in Knowledge</th>
<th>Ranchers</th>
<th>NRM/Extension staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>• Marketing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Business management &amp; planning</td>
<td></td>
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<tr>
<td></td>
<td>• Sustainable production systems</td>
<td>• Diversification</td>
</tr>
<tr>
<td>Environmental</td>
<td>• Landscape processes &amp; function</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Legislation &amp; regulations</td>
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<tr>
<td></td>
<td>• Understanding of natural resources</td>
<td>• Understanding of natural resources</td>
</tr>
<tr>
<td></td>
<td>• Environmental management systems/certification</td>
<td>• Environmental management systems/certification</td>
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</tbody>
</table>
### Gaps in Knowledge (cont’d)

<table>
<thead>
<tr>
<th>Social</th>
<th>Overarching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ranchers</td>
<td>NRM/Extension staff</td>
</tr>
<tr>
<td>Recruiting, managing &amp; coaching people</td>
<td>Multiple-use management</td>
</tr>
<tr>
<td>Communication, negotiation &amp; conflict management</td>
<td>Forces driving change</td>
</tr>
<tr>
<td>Self-awareness &amp; management</td>
<td>Property, catchment &amp; regional planning</td>
</tr>
<tr>
<td>Stakeholder values &amp; perceptions</td>
<td>Systems/holistic management</td>
</tr>
<tr>
<td>Cultural &amp; historical appreciation</td>
<td>Basic field/bush skills</td>
</tr>
</tbody>
</table>
Alignment of existing educational programs with needs

... based on content & delivery
Alignment of Australian Undergraduate programs* with Needs
*agriculture & environmental studies only

<table>
<thead>
<tr>
<th>% alignment with needs</th>
<th>Distance</th>
<th>Internal</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>17</td>
<td>33</td>
</tr>
<tr>
<td>90</td>
<td>17</td>
<td>33</td>
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<td>80</td>
<td>17</td>
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<td>33</td>
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N = 156

# programs
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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For each course......

*Total = 250 stakeholders engaged
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
Rangeland Management Program (cont’d)

Electives

• Grazing land management
• Advanced rangeland ecology
• Rangeland pest animals, weeds and biosecurity
• Property, catchment and regional planning
• Rangeland monitoring and adaptive management
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