Fostering graduate attributes through field education in post-quake Canterbury, New Zealand

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Outline

• Canterbury earthquakes
  • Response: immediate and longer term
  • Human capital: education as key to rebuilding Christchurch

• University of Canterbury graduate attributes
  • A venue to articulate and foster a unique skillset
  • Field education as a way to address these attributes

• How can we identify these concepts in students in the field?
  • Landscape heritage and sense of place as a framework for field education
Christchurch City and Epicentre Locations

4 Sept. 2010: $M_w 7.1$

22 Feb. 2011: $M_w 6.2$

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Earthquake Damage and University Response

- Darfield earthquake
  - 4 Sept. 2010, overnight, $M_W 7.1^1$
  - Substantial liquefaction damage
- Port Hills earthquake
  - 22 Feb. 2011, mid-day, $M_W 6.2^1$
  - Peak ground acceleration
  - 185 people lost
- University of Canterbury closed, assessed damage on campus, re-opened when safe$^2$
  - Temporary teaching facilities, online delivery of materials
  - Done for each earthquake $> M_W 5.5$ (29 times in the 18 months post-4 Sept. 2010)

$^1$Bannister and Gledhill, 2012; $^2$University of Canterbury, Resilience Tested
Students Take Action

• Students mobilized almost immediately after the 4 Sept. quake, using social media

• Formed Student Volunteer Army
  • Provided 2500+ students with placement, transport, and food
  • Cleared 65 000 tons liquefaction
  • Still in existence today, helping with a variety of community projects

• Just one well known example, students giving back in many ways

Wikimedia Commons, Author: Jane Ross
University of Canterbury Longer Term Response

• Education as key to rebuilding Christchurch
• Graduating students as human capital
  • Resilient and broadly skilled
  • Living and rebuilding through a disaster
• Six graduate attributes identified (shortened here):
  1. Knowledge and skills of a recognized subject
  2. Critical thinking skills and intellectual independence
  3. The ability to interpret information from a range of sources
  4. The ability to self-direct learning
  5. Cultural competence
  6. Recognition and understanding of global citizenship through social, ethical, and environmental values
Graduate Attributes in Fieldwork

• Knowledge and skills of a recognized subject
  • Petcovic et al., 2009; Kastens et al., 2009; Petcovic et al., 2014

• Critical thinking skills and intellectual independence
  • Kastens et al., 2009; Riggs et al., 2009; Feig, 2010; Petcovic et al., 2014

• The ability to interpret information from a range of sources
  • Kastens et al., 2009; Feig, 2010

• The ability to self-direct learning
  • Petcovic et al., 2009; Riggs et al., 2009
Graduate Attributes in Fieldwork

- Cultural competence
  - Semken and Butler Freeman, 2008; Semken and Brandt, 2010; Williams and Semken, 2011

- Recognition and understanding of global citizenship through social, ethical, and environmental values
  - Smaglik, 2008; Wandersee and Clary, 2008; Semken and Brandt, 2010; van der Hoeven Kraft et al., 2011
Framework Concepts for Field Education

• Need a way to conceptualize these complex topics in order to understand how they are being developed in the field
• And hence, how they are applicable and marketable as workforce (and life!) skills
• First, think about the landscape as more than just a context for field education
• Next, think about how students (and people) think and learn about that landscape
Landscape Heritage

• Integrates natural and cultural features in a spatio-temporally inclusive manner\(^1\)
• Avoids overspecialization of field education\(^2\), by taking a holistic view of the landscape
• Builds upon the earth systems approach\(^3\) by expanding temporal scope
• Maintain ‘reciprocal equity’\(^4\) between people and landscapes

\(^1\)Krauss, 2005; Setten 2005; \(^2\)Whitmeyer et al., 2009; Petcovic et al., 2014; \(^3\)Musters et al., 1998; \(^4\)Ault, 2008, p.605
Sense of Place

- People construct reality by sensing and perceiving landscapes\(^1\)
- Create meanings, rooted in the ‘lived consciousness’\(^2\) of that place
- Many components of sense of place

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1. Tuan, 1977; 2. Tilley, 1994, p.15

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Williams and Stewart, 1998; Williams and Vaske, 2003; Semken and Butler Freeman, 2008
Conclusions

• Unique situation forced the University of Canterbury to consider an increased range for the development of a graduate skillset
• Focus on broader ways that field education may develop career geoscientists of all kinds
• In particular, cultural and global socio-environmental skills may be conceptualized by thinking about the field landscape more holistically
• And, identifying aspects of the field experience related to place
Thank you!

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