

EDITORIAL

Graduate attributes: implications for higher education practice and policy

The higher education landscape is shifting under neo-liberal forces that are increasingly aligning the goals of business, government and education (Olssen & Peters, 2005; Giroux, 2010; Ingleby, 2015). This shift is engendering debate around the world about the role of higher education institutions in producing employable graduates to feed national prosperity in the emerging knowledge economy (with respect to geography see Kong, 2007; Li et al., 2007; Arrowsmith et al., 2011; Hennemann & Liefner, 2010; Whalley 2011, Erickson 2012). As this evolution continues, we need to consider how we enhance generic graduate capabilities as well as the disciplinary expertise of our undergraduate students. In order to avoid deferring to market forces and the consequent commodification of teaching and learning (Cribb & Gewirtz, 2013), we can make conscious decisions about our curriculum content and co-curricular activities, pedagogies and the nature and use of learning spaces. Our graduates should possess the knowledge, skills and values to enable them to cope with dynamic employment opportunities, but they must also understand, through the benefits and constraints of their disciplinary perspectives, who they are and how they might contribute positively to the heterogeneity they will encounter in their local, regional and global communities (Barnett, 2004).

Many different terms have been used in the higher education literature to describe the generic skills of graduates and these commonly include: graduate attributes, competencies, qualities or outcomes; generic attributes; transferable, employability or soft skills; and core capabilities (de la Harpe et al., 2000; Barrie, 2004, 2006). A hierarchy of terms has been postulated recently by workers in New Zealand (Spronken-Smith et al., 2015 and this volume). This hierarchy develops from graduate attributes as specific knowledge, skills and values, through graduate profiles that refer to the summation of attributes at either programme or institutional level, culminating in the term 'graduate outcome', which is used to encompass both graduate attributes and graduate profiles. For this symposium we adopt the term graduate attributes as per Spronken-Smith et al. (2015), viewing them as skills, knowledge, attitudes and values that are distinguished from the disciplinary expertise associated more traditionally with higher education, but which make a contribution to the profession. Graduate attributes are broader and more encompassing than 'employability', helping to develop academic, citizenship and career competencies. They are an orientating framework of educational outcomes that a university community agrees its graduates should develop as a result of completing their studies successfully. Some common graduate attributes have gained favour in

universities and these include: critical thinking skills, such as intellectual curiosity, analytical reasoning, problem-solving and reflective judgement; effective communication; leadership and teamwork skills; research and inquiry skills; information literacy; digital literacy; personal attributes such as self-awareness, self-confidence, personal autonomy/self-reliance, flexibility and creativity; and personal values such as ethical, moral and social responsibility, integrity, and cross-cultural awareness.

Due to a growing emphasis on quality assurance, graduate attributes have become well established in Australian universities over the past two decades (Barrie, 2006; Kalfa & Taksa, 2015). They have been integrated via the 'Graduates for the 21st Century' Enhancement Theme into the Scottish Quality Enhancement Framework, embedded in England within individual institutions following the HEFCE skills agenda, and promoted in Europe following the Bologna Process (Drummond et al., 1998; Barrie, 2007; Hounsell 2011). There is ongoing and renewed interest in graduate skills in the United States (Solem et al., 2008). In New Zealand, however, graduate attributes have gained momentum more recently following development of the New Zealand Qualifications Framework (Spronken-Smith et al., 2015). Overall, it is fair to say that graduate attributes are increasingly being used to inform curriculum design and engagement with teaching and learning experiences at universities around the world (Barrie, 2007).

A number of issues have been examined in the higher education literature concerning graduate attributes. These include the processes of designating and implementing such attributes within, across and beyond curricula. Research shows that, combined with strong leadership from senior management and institutional enabling structures (de la Harpe & David 2012; Spronken-Smith et al, 2015), there needs to be a balancing of disciplinary content and generic graduate attributes, and of academic 'contemplative' versus business-minded 'instrumental' orientations to knowledge (Bradshaw, 1992). An important role has been highlighted for academic staff in the implementation of graduate attributes in order to take ownership of institutionally-derived descriptors and to make them relevant to disciplines (Chapple & Tolley, 2000). Even generic attributes such as critical thinking and problem-solving can be contextualised to the discipline (and a host of other local factors) and thus each degree programme needs a contextualised graduate profile (Jones, 2009, 2013; Litchfield at al., 2010; Whalley et al., 2011). Embedding graduate attributes within curricula, however, is dependent upon academic staff viewing their role in fostering such skills and dispositions positively and delivering learning activities that are effective in the delivery of these attributes. There needs to be a move from teacher-focused to learner-focused activities (Barrie, 2007), from passive to

participatory pedagogies (Hill, 2013) and, both within and beyond the curriculum, an embracing of students as partners in their learning journey (Healey et al., 2014; Johansson & Felten, 2014). If academic staff are to engage proactively with the development of graduate attributes, they must view them as ‘translational’ or ‘enabling’ (using the conceptual basis of Barrie, 2006), i.e. attributes that are necessary to apply disciplinary knowledge to unfamiliar contexts or essential to support the creation of new knowledge. To enhance the chances of success, implementing graduate attributes systemically across programmes and institutions should be given time (beyond two academic years), be embedded in course development and review processes, thereby encouraging reflexive practice and delivery of validated and living curricula (Bath et al., 2004) and incorporated into extra-curricular reflective graduate passports.

After implementing graduate attributes within higher education institutions there is a need to consider how to ensure that students are developing specific attributes. Evaluating the attainment of graduate attributes is not straightforward (Hughes & Barrie, 2010) and using complementary types of data, including curriculum documentation, student perceptions and longitudinal studies involving alumni and employer responses, is perhaps the optimum way to achieve this (Hughes & Barrie, 2010; Fraser & Thomas, 2013; Spronken-Smith et al., 2015). Such triangulation overcomes the weaknesses of individual methods. For example, curriculum mapping (which highlights graduate skills development within existing curricula) has the potential to promote a superficial approach to developing graduate attributes unless appropriate teaching and learning strategies are used and evidence of implementation is sought (Sumison & Goodfellow, 2004; Green et al., 2009). Graduate attributes can be established via co-curricular activities that simply develop ‘awareness’ of particular skills and qualities. Their attainment within taught units can also be formally assessed and graded. Indeed, the strongest evidence of the achievement of graduate attributes is their ‘explicit embedding in assessment’ (Hughes & Barrie, 2010: 325). It must be remembered, however, that whilst some graduate attributes are measurable (and in the UK these attributes tend to warrant the term graduate outcome), affective attitudes and values are much more difficult to measure (Green et al., 2009; Haigh & Clifford, 2011). Equally, there is a need to consider how graduate attributes are achieved by students on modular courses, such as their embedding in compulsory core units (Bath et al., 2004), or in multi-level courses, by using careful curriculum design to differentiate learning and assessment activities and promoting peer-to-peer learning (Mager & Spronken-Smith, 2014). Overall, practices considered as ‘high impact’ (Kuh, 2009) are generally well suited to the teaching, learning and assessment of graduate attributes (see Spronken-Smith et al. this volume). Finally, the development of attributes from undergraduate to taught postgraduate level must not be

overlooked, and integrated frameworks across these levels have begun to emerge recently (see, for example, Oxford Brookes University, UK: <https://www.brookes.ac.uk/OCSLD/Your-development/Teaching-and-learning/Graduate-attributes/>).

The two issues of embedding graduate attributes in curricula and their subsequent attainment by students have been brought together in the literature to examine the extent of alignment between what is espoused and enacted by academic staff and what is experienced by students (Bath et al., 2004; Mager & Spronken-Smith, 2014). Whilst such studies reveal some consensus, integrating university curricula with teaching delivery and graduate attribute attainment rarely seems to align as expected (Drummond et al., 1998; Barrie, 2005). This led Green et al. (2009) to question 'Why is it so hard to develop graduate attributes?' Their answers included a lack of common understanding of graduate attributes, the challenge of relating graduate attributes to different disciplinary backgrounds and the pressures on academic staff faced with rising student numbers to develop the necessary aligned pedagogies and assessment strategies. To help overcome the latter, the authors suggested that institutions should offer professional development to academic staff, and such staff should subsequently receive appropriate reward and recognition. More recently, de la Harpe & David (2012) examined the role of academic staff specifically in integrating graduate attributes across curricula and concluded that academics may hold an idealised conception about the importance of graduate attributes, but this is not always translated into a working conception. The gap between idealised and realised conceptions was linked most strongly to staff willingness and confidence to teach and assess graduate attributes, and these dispositions were, in turn, related positively to gender (being female), teaching qualification and industry experience. These findings have implications for institutional policies concerning staff recruitment, reward and professional development, not least that they must be appropriately prioritized, properly resourced and adequately integrated with one another. There is certainly a need to consider strengthening the relationships between academic and professional staff and offering staff industry placements or mentoring. Equally, curricula might profitably become more outward facing, with some teaching and assessment moving beyond the university to service- or work-based arenas, delivered by qualified practitioners.

Finally, there is a need to engage students meaningfully with the development of their own student identities, graduate attributes and emergent professional identities such that they accept agency in the process rather than having their identities constructed for them through integrated systems and implementation (Haigh & Clifford, 2011; Fraser & Thomas, 2013; Daniels & Brooker, 2014; Su, 2014).

There is an important role here for co-curricular activities in supporting a more student-centred partnership approach (Green et al., 2009). In this way, students develop graduate attributes because they are relevant to their sense of self, and they are subsequently aware of the skills they have gained during their studies and can articulate them explicitly to employers (see Hill & Walkington this volume). This move to a person-based approach requires management strategies to consider how attainment of graduate attributes could become more reflexive and authentic, based in self-directed learning that cultivates students' capacity to adapt flexibly to being in the world (Su, 2014). Working this approach into a top-down, centrally-enacted environment is no small task. For the higher education sector to play a proactive role in shaping and delivering the graduate skills agenda it will need to implement strategy and policy changes, possibly necessitating cultural development within institutions and certainly leading to a re-consideration of teaching, learning and assessment strategies, within and beyond curricula, that are appropriate for developing discipline-nuanced graduate attributes (Green et al., 2009).

The papers that comprise this symposium are set within and build upon this research context. They originate from a series of conference sessions convened and chaired by the authors in 2013 at two events: the Royal Geographical Society (with Institute of British Geographers) Annual International Conference held in London, UK, and the Association of American Geographers Annual Meeting held in Los Angeles, USA. These sessions examined the multifarious ways that geography educators support students in developing graduate attributes, within the classroom, out in the 'field' and beyond the curriculum. They explored the signature pedagogies of geography, the 'types of teaching that organise fundamental ways in which future practitioners are educated for their new professions' (Shulman, 2005: 52), aiming to build theoretical and empirical foundations for more effective teaching, learning and assessment of graduate attributes.

In the opening paper of the symposium, Martin Haigh invites us to consider a pedagogic method that can be deployed in classroom settings to encourage undergraduates to explore beneath the surface of problems. By instilling in learners a habit of critical inquiry, they come to construct a set of personal and research literacies that might be regarded as key graduate attributes. Based within Dharmic traditions, the method of Causal Layered Analysis (CLA) prompts students to consciously access deeper levels of meaning within a context by analysing four layers that underlie the surface appearance. These layers deal successively with: popular understanding (received wisdom of lectures and textbooks); social scientific causation (the social construction of the discipline); worldview and cultural tradition (culturally mediated presumption and discourse); and myth and

metaphor (sub-conscious beliefs in, for example, an objective and measurable world). The paper demonstrates use of the CLA method in a variety of classroom exercises to help final year geographers critique the substance of geographical discourse, personal learning and themselves. Explored through reflective journals and term papers, the results show that CLA exercises can be challenging for learners, but persistence with them helps students to discover deeper meaning within their studies. Personal ideas, narrative sub-texts and cultural beliefs are exposed, which might otherwise go unquestioned. Students become more aware of the situated nature of knowledge and learning, enabling them to view the world as others see it and helping them to develop self-authorship (Baxter Magolda, 2004).

Derek France and colleagues present the first of three papers that investigate the relationship between field work, a signature pedagogy of geography, and graduate attributes. These authors examine in particular the use of mobile technologies for learning during fieldwork and the development of graduate knowledge, skills and values. Focus groups were undertaken with students post-fieldwork on four undergraduate residential field courses. The students were asked to discuss generically, and then map specifically, how their use of mobile apps in the field had contributed to the development of five key graduate attributes. The results highlight that the students make clear links between the use of a variety of mobile apps and graduate attribute development, including personal and research literacy, academic literacy and digital literacy. The research suggests that a number of mobile apps can align simultaneously with more than one graduate attribute. Furthermore, prior experience and the context of use can influence students' perceptions of an app's link with different graduate attributes. The results suggest that personal identity is an important part of the development of graduate attributes and that students relate their academic growth to preparation for their professional lives (see also Hill & Walkington in this volume).

In the second fieldwork paper, Ian Fuller and Derek France explore the connection between fieldwork and the development of graduate attributes mediated through the adoption of digital technology. The authors report on the success of adopting digital video capture to enable students to report on field methods in two final year undergraduate courses in physical geography at a higher education institution in New Zealand. The student experience is recorded through video diaries, questionnaires and focus group methodologies. The results show that students perceive digital video favourably in terms of helping them understand methods, processes, landforms and environments. It also fosters group work and helps students prepare for further academic and non-academic work. The authors conclude by mapping student feedback against a range of institutionally-defined

graduate attributes, noting development of communication and presentation skills, critical thinking, creativity, group work and self-awareness. Both subject-specific and generic skills are developed via the integration of digital video with fieldwork. The authors conclude that this approach ensures the subject's signature pedagogy remains connected to and informed by best practice, fostering creativity and innovation in learning, and developing graduate attributes beyond the classroom.

Pauline Couper and Su Porter move beyond traditional geography fieldwork in their paper to critique an approach from outdoor adventure education that may offer the potential to connect the cognitive knowledge of geography students with their personal identities and capacities for pro-environmental action. The development of what might be termed graduate attributes for sustainability is achieved by emphasizing a relational self-in-environment consciousness, which, in turn, can be captured and assessed through students' auto-ethnographic accounts of their embodied experiences with the 'field'. Using a second year undergraduate module as a case study, the authors highlight how production of a reflective diary, coupled with a final auto-ethnographic account of rock climbing, affords students the freedom to reflect on their experiences in relation to self, others and the environment. The students respond by expressing self-awareness, reflecting on what mediates their climbing encounters and noting how a creative approach to assessment encourages their more holistic engagement with the environment over the duration of the module. The students consciously consider the non-human world in terms of their own embodied experiences, practices and values. The authors conclude that if geography is to claim a case for being the natural 'home' of sustainability education then a relational understanding of self and non-human other may provide a means of connecting cognitive knowledge with the attributes of personal responsibility and agency.

Jennifer Hill and Helen Walkington move us out of the field and into extra-curricular space to examine the experiences of Geography, Earth and Environmental Science (GEES) students participating in the British Conference of Undergraduate Research (BCUR). Using the model of Barrie (2004), the authors qualitatively evidence the graduate attributes developed in this learning context, identifying self-authorship (Baxter Magolda, 2004) as an overarching pedagogic concept emanating from the acquisition of multiple attributes. The results highlight that GEES students demonstrate intellectual autonomy, repurposing their work for presentation to a multi-disciplinary audience through conversation with and benchmarking against peers. The students move towards self-authorship by consciously balancing the contextual nature of their disciplinary knowledge with intrapersonally grounded goals and values. The undergraduate research conference is a space in which

students express hybrid identities: a conjoining of undergraduate student and emerging graduate professional. The conference thereby offers students an opportunity to begin to construct their graduate professional identities during their studies, potentially helping them to navigate into their working and wider social lives. Implications for policy and practice are highlighted, including the need for faculty to help students harness the learning potential of their engagement with university life outside of formal classes, the responsibility for faculty to encourage inclusivity with such extra-curricular learning opportunities and the need to make the achievement of graduate attributes transparent to students.

Mehmet Seremet and Brian Chalkley explore the concept of graduate attributes in the relatively under-researched context of Turkey. They privilege the term employability as it is used more commonly in this country and they link their research specifically to skills acquisition for graduate jobs. The authors begin by describing Turkey's higher education system and its increasing commitment to the employability agenda via engagement with the Bologna process. They progress to examine the potential of teaching and learning in Geographic Information Systems (GIS) to contribute to the employability of geography graduates in Turkey, capturing the experiences of all key stakeholders: academic staff, students and employers, using semi-structured interviews, questionnaires and a review of GIS posts advertised in the Turkish media. The research reveals a mixed picture of opportunities and challenges. Faculty and students, for example, are aware of the employment potential of their GIS modules and consider this to be an important part of the rationale for teaching and learning GIS. Both groups note, however, the small amount of time available within GIS modules to teach and/or learn about many of the more advanced GIS skills sought after by employers. The paper ends with a series of employability recommendations, not least that geographers should continue to invest in GIS education to ensure that the discipline's pivotal role in national economies is recognised by governments, the education sector and employers.

In the final paper of the symposium, Rachel Spronken-Smith and colleagues present a toolkit for implementing graduate attributes in geography curricula based on findings from a research project sampling institutions from across New Zealand. These authors identify six indicators for engagement with graduate attributes at the programme level including making explicit links between graduate attributes and learning outcomes/assessment. In addition, all teaching staff and students should be aware of the graduate attributes in their programmes and there should be a mechanism in place to monitor student attainment towards a graduate profile. In order for geography leaders to engage

with graduate attributes, decisions need to be made about who will be responsible for driving curriculum renewal around graduate attributes, allowing graduate profiles to be contextualised for geography programmes. There must be a positive internal context for curriculum renewal and the process of embedding graduate attributes needs to be monitored using feedback to improve the learning experiences for students. The authors suggest that being successful at implementing graduate attributes in geography programmes requires strong leadership, academic developers to facilitate conversations, ownership of the process by teachers, incorporation of high-impact educational experiences and signature pedagogies to foster graduate attributes, and allowing sufficient time for curriculum renewal to take effect.

To conclude, universities are increasingly marketing their 'successful' students to industry using graduate attributes as measures of that success (Daniels & Brooker, 2014). Despite inconsistencies in the way that graduate attributes are perceived, taught and assessed, when their limitations are understood and accounted for they have a valuable role to play in enhancing learning and linking this learning to the world of work and to immersion of our graduates in global communities (Barrie, 2006). The research papers in this symposium highlight the need to consider consciously, holistically and critically the educational pedagogies and spaces that graduate attributes open up for us. If we work positively with graduate attributes in our curricula and co-curricular spaces we can move towards more participatory and self-regulatory teaching, learning and assessment. Notwithstanding the neoliberal agendas that are increasingly apparent internationally, uniting disciplinary knowledge and skills with generic competencies that enable mindful application of subject-specific expertise in academic and societal contexts offers a bright future for geography in higher education.

Jennifer Hill, Helen Walkington and Derek France

Email: Jennifer.Hill@uwe.ac.uk

References

- Arrowsmith, C., Bagoly-Simó, P., Finchum A., Oda, K. & Pawson, E. (2011) Student employability and its implications for geography curricula and learning practices. *Journal of Geography in Higher Education*, 35, 365-377.
- Barnett, R. (2004) Learning for an unknown future. *Higher Education Research and Development*, 23, 247-260.
- Barrie, S.C. (2004) A research-based approach to generic graduate attributes policy. *Higher Education Research & Development*, 23, 261-275.
- Barrie, S. (2005) Rethinking generic graduate attributes. *Higher Education Research & Development Society of Australia News*, 27, 1 and 3-6.
- Barrie, S.C. (2006) Understanding what we mean by generic attributes of graduates. *Higher Education*, 51, 215-241.
- Barrie, S.C. (2007) A conceptual framework for the teaching and learning of generic graduate attributes. *Studies in Higher Education*, 32, 439-458.
- Bath, D., Smith, C., Stein, S. & Swann, R. (2004) Beyond mapping and embedding graduate attributes: bringing together quality assurance and action learning to create a validated and living curriculum. *Higher Education Research and Development*, 23, 313-328.
- Baxter Magolda, M.B. (2004) Preface. In M.B. Baxter Magolda & P.M. King. (eds.) *Learning Partnerships: Theory and models of practice to educate for self-authorship*. Sterling, VA: Stylus Publishing, pp. xvii-xxvi.
- Bradshaw, D. (1992) Classifications and models of transferable skills. In H. Eggins, (ed.) *Arts graduates, their skills and their employment: Perspectives for change*. London: Falmer Press, pp. 39-115.
- Chapple, M. & Tolley, H. (2000) Embedding key skills in a traditional university. In S. Fallows and C. Steven (Eds.) *Integrating key skills in Higher Education*. London: Kogan Page, pp. 67-76

Cribb, A. & Gewirtz, S. (2013) The hollowed-out university? A critical analysis of changing institutional and academic norms in UK higher education. *Discourse: Studies in the Cultural Politics of Education*, 34, 338-350.

Daniels, J. & Brooker, J. (2014) Student identity development in higher education: implications for graduate attributes and work-readiness. *Educational Research*, 56, 65-76.

Drummond, I., Nixon, I. & Wiltshire, J. (1998) Personal transferable skills in higher education: the problems of implementing good practice. *Quality Assurance in Education*, 6, 19-27.

Erickson, R.A. (2012) Geography and the changing landscape of higher education. *Journal of Geography in Higher Education*, 36, 9-24.

Fraser, K. & Thomas, T. (2013) Challenges of assuring the development of graduate attributes in a Bachelor of Arts. *Higher Education Research & Development*, 32, 545-560.

Giroux, H.A. (2010) Bare pedagogy and the scourge of neoliberalism: rethinking higher education as a democratic public sphere. *The Educational Forum*, 74, 184-196.

Green, W., Hammer, S. & Star, C. (2009) Facing up to the challenge: why is it so hard to develop graduate attributes? *Higher Education Research & Development*, 28, 17-20.

Haigh, M. & Clifford, V.A. (2011) Integral vision: a multi-perspective approach to the recognition of graduate attributes. *Higher Education Research & Development*, 30, 573-584.

de la Harpe, B. & David, C. (2012) Major influences on the teaching and assessment of graduate attributes. *Higher Education Research & Development*, 31, 493-510.

de la Harpe, B., Radloff, A. & Wyber, J. (2000) Quality and generic (professional) skills. *Quality in Higher Education*, 6, 231-243.

Healey, M., Flint, A. & Harrington, K. (2014) *Developing Students as Partners in Learning and Teaching in Higher Education*. York: Higher Education Academy.

Hennemann, S. & Liefner, I. (2010) Employability of German geography graduates: the mismatch between knowledge acquired and competencies required. *Journal of Geography in Higher Education*, 34, 215-230.

Hill, J. (2013) Editorial: Celebrating the scholarship of teaching and learning. *Planet*, 27, 1-5.

Hounsell, D. (2011) *Graduates for the 21st Century: Integrating the Enhancement Themes*. Gloucester: The Quality Assurance Agency for Higher Education.

Hughes, C. & Barrie, S. (2010) Influences on the assessment of graduate attributes in higher education. *Assessment and Evaluation in Higher Education*, 35, 325-334.

Ingleby, E. (2015) The house that Jack built: neoliberalism, teaching in higher education and the moral objections. *Teaching in Higher Education*, 20, 518-529.

Johansson C. & Felten P. (2014) *Transforming Students: Fulfilling the Promise of Higher Education*. Baltimore, MD: Johns Hopkins Press.

Jones, A. (2009) Redisciplining generic attributes: the disciplinary context in focus. *Studies in Higher Education*, 34, 85-100.

Jones, A. (2013) There is nothing generic about graduate attributes: unpacking the scope of context. *Journal of Further and Higher Education*, 37, 591-605.

Kalfa, S. & Taksa L. (2015) Cultural capital in business education: reconsidering the graduate attributes movement and the focus on employability. *Studies in Higher Education*, 40, 580-595.

Kong, L. (2007) Geography's place in higher education in Singapore. *Journal of Geography in Higher Education*, 31, 39-56.

Kuh, G. (2009) *High-impact educational practices: what they are, who has access to them, and why they matter*. Washington, DC: Association of American Colleges and Universities.

Li, X., Kong, Y. & Peng, B. (2007) Development of geography in higher education in China since 1980. *Journal of Geography in Higher Education*, 31, 19-37.

Litchfield, A.J., Frawley, J.E. & Nettleton, S.C. (2010) Contextualising and integrating into the curriculum the learning and teaching of work-ready professional graduate attributes. *Higher Education Research & Development*, 29, 519-534.

Mager, S. & Spronken-Smith, R. (2014) Graduate attribute attainment in a multi-level undergraduate geography course. *Journal of Geography in Higher Education*, 38, 238-250.

Olssen, M. & Peters, M.A. (2005) Neoliberalism, higher education and the knowledge economy: from the free market to knowledge capitalism. *Journal of Education Policy*, 20, 313-345.

Shulman, L. (2005) Signature pedagogies in the professions. *Daedalus*, 134, 52-59.

Solem, M., Cheung, I. & Schlemper, M.B. (2008) Skills in professional geography: an assessment of workforce needs and expectations. *The Professional Geographer*, 60, 356-373.

Spronken-Smith, R., Bond, C., McLean, A., Frielick, S., Smith, N., Jenkins, M. & Marshall, S. (2015) Evaluating engagement with graduate outcomes across higher education institutions in Aotearoa/New Zealand. *Higher Education Research & Development*, 34, 1014-1030.

Su, Y. (2014) Self-directed, genuine graduate attributes: the person-based approach. *Higher Education Research & Development*, 33, 1208-1220.

Sumison, J. & Goodfellow, J. (2004) Identifying generic skills through curriculum mapping: a critical evaluation. *Higher Education Research and Development*, 23, 329-346.

Whalley, W.B., Saunders, A., Lewis, R.A., Buenemann, M. & Sutton, P.C. (2011) Curriculum development: producing *Geographers* for the 21st century. *Journal of Geography in Higher Education*, 35, 379-393.