

A capabilities approach to higher education: geocapabilities and implications for geography curricula

Helen Walkington*¹ Sarah Dyer² Michael Solem³ Martin Haigh¹ Shelagh Waddington⁴

*corresponding author

1 Oxford Brookes University, Oxford, UK

2 Exeter University, Exeter, UK

3 Association of American Geographers, Washington DC, USA

4 Maynooth University, Maynooth, Ireland

Abstract

A geographical education offers more than skills, subject knowledge and generic attributes. It also develops a set of discipline-specific capabilities that contribute to a graduate's future learning and experience, granting them special ways of thinking for lifelong development and for contributing to the welfare of themselves, their community and their world. This paper considers the broader purposes and values of disciplinary teaching in contributing to individual human development. Set in the context of recent debates concerning the role of the university and the neo-liberalisation of higher education this paper explores approaches to developing the geography curriculum in ways that re-assert the educational value of geographical thinking for students. Using international examples of teaching and learning practice in geography, we recognise five geocapabilities: use of the geographical imagination; ethical subject-hood with respect to the impacts of geographical processes; integrative thinking about society–environment relationships; spatial thinking; and the structured exploration of places. A capabilities approach offers a productive and resilient response to the threats of pedagogic frailty and increasingly generic learning in higher education. Finally, a framework to stimulate dialogue about curriculum development and the role of geocapabilities in the higher education curriculum is suggested.

Key words: geocapabilities, curriculum, pedagogy, human welfare development

A capabilities approach to higher education: geocapabilities and implications for geography curricula

Introduction

This paper contributes to recent debates concerning the role of the university, and the discipline of geography specifically, in preparing students for life and work in the complex modern era of globalization and interdependence. While debates on the purpose of education continue to flourish, the prevailing view among policymakers and, arguably, much of the public increasingly situates higher learning in the context of neoliberal economics and human capital development. Institutions of higher education around the globe are being held accountable against various metrics of educational outputs, productivity measures, cost efficiencies, external funding, skills education, workforce training, graduate employment and earning power (O'Neill, 2015). This situation forms part of a long running debate about the purposes of Higher Education, whether it be for the education of an informed and compassionate citizenry or for the training of a skilled and capable workforce (Orr, 1994; Whalley, et al, 2011).

As these trends shape teaching, learning and the administration and funding of higher education programmes, a concurrent critique has emerged that portrays the purpose of education in a different light. Drawing on the principles of human capability development pioneered by Amartya Sen and Martha Nussbaum, advocates of a “capabilities approach” to education have voiced alternative conceptions of the modern university as a vital resource for the lifelong development of human potential and wellbeing (Nussbaum, 2011; Nussbaum & Sen, 1993). In this view, educators are encouraged to consider the broader purposes and values of disciplinary knowledge in contributing to human welfare development, both individual and collective, and in developing the capabilities of learners to make and act upon ethically informed personal choices. The capabilities approach is not intended to discredit efforts to prepare students for the modern global economy. Rather, it broadens the dialogue over the role of universities and emphasizes the crucial role of disciplinary knowledge in the holistic development of an effective and informed global citizenry.

This paper explores the case for a capabilities approach in higher education in geography. It proposes five geocapabilities and considers their implications for curriculum, pedagogy and faculty development.

Discourses of the value of teaching and learning in changing higher education landscapes

This section explores the increasing neoliberalisation of higher education and how this impacts on the teaching and learning of disciplines. Mager and Spronken-Smith (2014) identify massification, consumerism, and vocationalism as having reshaped universities in the last 20 years. These trends are driven by a set of concerns about the value of higher education (often understood in narrow economic terms) and about the accountability of academics, as professionals, to the state, wider society and to the world. These concerns are complex. The expansion of higher education has resulted in changes in the types of workers needed in a modern economy (Powell and Snellman 2004; Spronken-Smith 2013), but also by concerns for increased equality of opportunity and greater social justice within societies. Consumerism and an increased vocational focus are driven by changes in those who bear the costs of university education but also, in part, by reconfiguration of the relationship between professions and society (Demeritt 2000; Porter 1995) and demands to take the needs (or 'voice') of students and communities seriously (McLeod, 2011).

In practice, these changing political contexts have led to increasing managerialism and to Universities being co-opted into neoliberal agendas. Sidaway and Johnston (2007, 67) characterize managerial universities as ones where 'all activity ha(s) to be monitored and evaluated to ensure 'quality for money' in an all-pervading 'audit and accountability culture.' These logics have important and increasingly well-documented effects on the working lives of academics (Dowling 2008; Dyer et al., 2016; Gill 2009; Purcell 2007; Roberts 2000). Perversely, the steepening of the competitive hierarchies of universities (competing for students and funding) has led to their main social function, to provide teaching and learning, becoming subverted in pursuit of higher quality rankings based largely on research (especially winning research grants and publishing peer-reviewed papers). Amongst the dysfunctional educational consequences of the commodification of higher education is credentialism, which measures the value of learning by the brand of the qualification, rather than what has been learnt (Furedi, 2005), or one's ability to continue learning. The prioritization of research over teaching is used to justify reducing costly teaching activities (such as student contact-time, fieldwork and lab-work) and creates a push for departmental and individual specialization as a strategy to maximize research outputs, despite consequent fragmentation of the discipline (Holmes 2009; Sidaway and Johnston 2007) with academics working in silos and no longer identifying themselves as geographers but instead as, for example, an arid zone geomorphologist or architectural historian. In turn, the economics of scale can lead to departments closing or being restructured into larger non-disciplinary units (Chan 2011; Holmes 2002; Sidaway and Johnston 2007; Wainwright et al., 2014). Thus,

many geographers must teach (and research), occupying hybrid disciplinary subject positions. Whilst creating new possibilities, such positions are often detrimental to the individuals involved and to the coherence and identity of the discipline (Carter and Housel 2013; Wainwright et al., 2014).

These situations challenge geography, as a discipline, to articulate how it can accommodate these structural changes whilst maintaining its identity and specific qualities (cf. Chan, 2011).

In the current landscape, higher education is being reconfigured. Institutions are made accountable through metrics such as graduate employment statistics (O'Neill, 2015). The terms used to conceptualise and describe the value of education are key. Without interrogating such terminology we reduce our ability to resist or extend conversations. It is important to clarify the differences between the key terms of competency, attribute and capability as they have distinct meanings and implications of importance:

- A **competency** is something that can be measured at a point in time and is used by employers and accrediting bodies.
- A **graduate attribute** is a generic (non-discipline specific) attribute usually chosen at an institutional level (Barrie, 2006), such as research literacy that can be developed in the disciplines / technical subjects and through extra-curricular opportunities and at different levels of competency.
- A **capability** is the ability of a person to achieve their objectives i.e. it signifies enactment, doing, and being (Hinchliffe and Terzi, 2009; Nussbaum, 2011).

These definitions clarify how the concept of capability is distinct from that of competency. Competency refers to what a person can do now, whereas capability concerns their ability to develop new competencies, as required, in the future. Competency models are attempts to define the discrete sets of knowledge, skills, perspectives and abilities that are required for work in a particular industry or professional setting and students are assessed against each competency at a point in time. There are many examples of competency models for workforce development and higher education (Sanghi, 2007). Examples in geography include one for professional geography which defines 29 geographical and general skill

areas (Solem, Cheung & Schlemper, 2008), applied to post-graduate learning (Solem, Kollash & Lee, 2013). Another US-based competency model was created, specifically as a workforce development resource for the geospatial technology industry (DiBiase et al., 2010).

A Capabilities approach in Higher Education

A capabilities approach to education is informed by a history of thinking on the values and goals of education which forefront the importance of citizenship as well as futurity.

UNESCO's International Commission on Education for the Twenty-first Century (Delors et al., 1996), defines four pillars of learning:

1. "Learning to Know": developing the knowledge and skills needed to function in the world, including literacy, numeracy and critical thinking;
2. "Learning to Do": developing the capabilities needed for occupational success;
3. "Learning to Live Together" developing social capabilities and values that include peace, compassion, human rights and an appreciation of diversity;
4. "Learning to Be" involves personal spiritual development, values education and ethical awareness.

This approach acknowledges that education needs to go beyond developing generic and measurable external attributes (Barrie, 2004; Haigh and Clifford, 2011), instead informing the future through developing modes of being in the world, providing graduates with capabilities to put into action (Byram, 1997). While a capabilities approach encompasses the desirability of joining the workforce, it also encourages ways of living as a global citizen. It is important to note that developing capabilities is learner centred (Su, 2014), requiring deliberation and decision-making on the part of the student.

Capabilities are a broad range of human "functionings" (Nussbaum, 2011) that enable people to live effectively in society as autonomous individuals. They are future oriented, such that the capabilities approach aims to provide humans with real opportunities to achieve a state of physical, emotional, intellectual, and existential well-being in life (Delors et al., 1996). Nussbaum (2011) identified ten capabilities central to human welfare development. These include living a full life in good health, without fear of violence; an education that allows scope for imagination, for the development of senses, sensitivities, emotional attachment; emotional intelligence, empathy and compassion – for other humans and other living creatures; the ability to plan ahead, to play, and the practical capability of being empowered enough to control one's environment, both physical and political. Nussbaum (1997) argued

that a cosmopolitan world citizen is one capable of self-criticism, especially critical thinking about their own traditions, capable of seeing themselves as a member of a heterogeneous nation and world and imagining sympathetically the lives of people different from themselves (Killick, 2015). Freire (1998) agrees that real education involves developing the capability to understand one's own conditioning by society and culture, an ethical sensitivity, the ability to engage in critical self-reflection, and consequently develop the capability of humility. As a normative framework for understanding the purposes and values of education through learning a discipline, capabilities are not educational outputs that can be measured or assessed in the conventional sense. Using a capabilities framework to express educational goals is necessarily a more subjective, holistic and values-based activity.

The benefit of a capabilities approach to higher education is its ability to extend beyond neoliberal framings of higher education and to open-up possibilities for conversations. Using a capabilities approach does not ignore the role education plays in employability; nor does it suggest an international charter or a set of curriculum benchmarks. There are multiple strengths in the capabilities approach for geography in higher education, in particular in underpinning education which develops cosmopolitan global citizenship, developing curriculum and understanding the value of disciplinary knowledge. The approach helps academic geographers develop their curricula by clarifying the deeper benefits of geographical knowledge, thinking and practice. Adopting a capability approach can emphasize the benefits of disciplinary knowledge in the holistic development of an effective and informed global citizenry. Furthermore, it allows educators to consider the broader purposes and values of disciplinary knowledge in contributing to human welfare development, both individual and collective, and in developing the capabilities of learners to make and act upon ethically informed personal choices.

Geocapabilities

Our challenge as geography educators in higher education is to consider the specific ways that geographical knowledge, skills, and perspectives contribute to the development of capabilities that enable students to think creatively and critically about themselves, their communities, and the world. The concept of geocapability is highly relevant for contemporary debates about the role of geography in higher education and in preparing students for life, work, and citizenship. However, the goal of such thinking is to help academic geographers develop their curricula by clarifying the deeper benefits of geographical knowledge, thinking and practice (the doing, being, deliberating and decision making of a geographer). The multi-national geocapabilities project (Lambert, Solem, Tani, 2015) has begun this process in

teacher education and has relevance to curriculum thinking more broadly in higher education. This section considers how a future higher education curriculum in geography might be conceived and communicated when informed by capabilities principles. Hopefully, this will open up international discourse about a higher educational experience informed by geocapabilities.

Nussbaum (2011) argued that decent political order should secure all citizens ten 'central capabilities': Life; Bodily Health; Bodily Integrity; Senses, Imagination, and Thought; Emotions; Practical Reason; Affiliation; Other Species; Play; and Control over one's Environment¹. Of particular relevance to geography at higher education level are the following:

Senses, Imagination, and Thought - "Being able to use the senses, to imagine, think, and reason—and to do these things in a "truly human" way... Being able to use imagination and thought in connection with experiencing and producing works and events of one's own choice." (Nussbaum, 2011, p.33)

Emotions - "Being able to have attachments to things and people outside ourselves; to love those who love and care for us, to grieve at their absence; in general, to love, to grieve, to experience longing, gratitude, and justified anger." (*ibid* p.33)

Practical Reason. This is an Architectonic capability i.e. one that organises and pervades the other capabilities thus "Being able to form a conception of the good and to engage in critical reflection about the planning of one's life." (*ibid* p.34)

Affiliation, which is also architectonic is described as "Being able to live with and toward others, to recognize and show concern for other humans, to engage in various forms of social interaction; to be able to imagine the situation of another." (*ibid* p.34)

Other species "Being able to live with concern for and in relation to animals, plants, and the world of nature." (*ibid* p.34)

Play. Being able to laugh, to play, to enjoy (recreational) activities.

In the rest of the paper we propose a number of geocapabilities. The suggestion is that these specific disciplinary 'functionings' go beyond generic graduate attribute outputs and produce specific capabilities in learners that connect graduate attributes and disciplinary

¹ For Nussbaum (2011: 34) 'control over one's environment' entails political and material control. Primarily this requires legal rights and the rule of law, for example having and being able to enforce the right to political participation, freedom of speech, and to own property. The term is not used in the sense that geographers traditionally approach human – environment interactions.

knowledge and transcend them. Through these, it becomes possible to demonstrate the power of geographical knowledge that builds capabilities grounded in the character of disciplinary education, i.e. geocapabilities. We use the capabilities approach as means to articulate what geography as a discipline might contribute over and above generic attributes. However, as with the notion of graduate attributes, there remains the problem that capabilities, can also be interpreted in multiple ways that do not necessarily lead to changes in practice or contribute to the development of a more future-oriented curriculum. The way that Barrie (2006) highlights the variation amongst academic's conceptions of graduate attributes is highly instructive for any attempt to develop a discourse around geocapabilities. Barrie's (2006) research found that academics often applied their different conceptions of generic attributes in ways that reduced them to hollow conceptions, empty of agency. The same risks apply to conceptions of geocapabilities which could easily be reduced to no more than an academic 'check list.'

In the UK, the Quality Assurance Agency published a subject benchmark statement for geography (QAA, 2014). This provides a sense of the entitlement, in terms of likely content and experience, that students should encounter through studying the discipline at degree level. The benchmark acts as a bridge between disciplinary and generic attributes, current skill and knowledge acquisition and forward-looking capabilities. What is significant is that it acknowledges the sense of 'becoming a geographer'.

In defining geocapabilities, it is worth noting the work of the educationalist Gardner (2006), who recognised five types of mind that education should cultivate, and Harvey's influential "attainable global perspective" (Harvey, 1975; Klein et al., 2014). Adapted to geography, Gardner's 'minds' include: first, the disciplined mind employing the ways of thinking associated with the discipline of geography; second the synthesising mind– "selecting crucial information ... arraying that information in ways that make sense to oneself and others" (Gardner 2006, p. 154), a skill traditionally espoused by geographers as spatiality; third the Creating mind – "going beyond existing knowledge and syntheses to pose new questions, offer new solutions, fashion works that stretch existing genres or configure new ones" (Gardner, 2006, p.155), which is related to Harvey's knowledge of global dynamics and of the global system, much emphasized by geography's focus on sustainability and environmental change (Nally, 2011; Truffner, Murphy and Raven, 2015); fourth the respectful mind – "Responding sympathetically and constructively to differences among individuals and among groups; seeking to understand and work with those who are different" (Gardner, 2006, p. 156) reflecting Harvey's 'Perspective of Consciousness' or an appreciation of positionality, cross-cultural awareness related to the geographical imagination (Monk, 2000); and, finally, the ethical mind – "Abstracting crucial features of one's role as a citizen and

acting consistently with those conceptualizations” (Gardner, 2006, p. 157) providing an awareness of human choices (Hanvey, 1975). Applied to geography in higher education, geocapabilities are those specific capabilities derived from the character and practice of the discipline itself, despite international variation in scope and content.

The challenge remains to define how geography curricula in higher education can do more to serve the dual purpose of developing individuals who are both capable geography professionals and capable of attaining their full potential and wellbeing in life (Boni & Walker, 2013). To achieve this, it is necessary to go beyond the language of outputs or broad educational benefits and focus upon what it is that the discipline adds (Hinchcliffe & Terzi, 2009; Kuklys, 2005). Such aims concern the special value of geographical knowledge in terms such as the ways it facilitates personal autonomy and freedom, an ability to view and interpret the world in relational terms, and a propensity for envisioning alternative futures for people, places, and environments (Lambert, Solem, & Tani, 2015).

Methodology

This section illustrates how specific geocapabilities for higher education were identified. A set of case studies were collected at an International Network for Learning and Teaching for geography in higher education event held in Surrey, UK, in 2014. Thirty geography faculty from nine countries were asked to participate in a liquid café (Brown & Isaacs, 2005) session to respond to the question: ‘What new ways of understanding, thinking and explaining do we as geographers introduce to students in higher education?’

During early discussions, one participant described how a traditional history and philosophy of geography final year module was being removed from a department’s geography programme in favour of an employability module. In the new module, students were assessed on applications for jobs through written CV’s and covering letters. As we thought about this reported curriculum change from the perspective of transitioning to the neoliberal university and what might be lost as a result of a refocussing on generic graduate attributes rather than geocapabilities, it served to highlight how powerful real examples of practice were and generating these became central to our methodology. The liquid café format allowed us to ask delegates to describe (in writing on paper tablecloths) exemplars from their practice that related to developing long term capabilities in students through geography teaching and learning.

This participatory research process involved grouping these current geography teaching exemplars to establish a set of geographical capabilities. By reading these examples and in association with the themes from our literature review, we propose five geocapabilities for

higher education curricula. The examples we reviewed came from diverse contexts in Canada, China, England, Ireland, Portugal, Singapore, Spain, the United States and Wales. The examples were focused on the learning process, rather than on outcomes and demonstrated a commitment to the development of future oriented capabilities.

Geocapabilities - an opening suggestion:

Through a higher education in geography, graduates have the opportunity to develop geocapabilities that contribute to human development and wellbeing. The five geocapabilities proposed bring together characteristics of Nussbaum's (2011) ten capabilities but offer something provided by geography as a discipline that is distinctive to higher education. Each is connected to one or more of Nussbaum's ten central capabilities and is informed by the UK's benchmark statement for geography in higher education (QAA, 2014). No hierarchy of these geocapabilities is implied by the order in which they are outlined, they are considered to have equal standing.

1. Geographical imagination

Our first geocapability is that of the geographical imagination. The dictionary of human geography describes geographical imagination as a "sensitivity towards the significance of place and space, landscape and nature in the constitution and conduct of life on earth" (Gregory, 2000, 298). Developing the capability to see and think like a geographer is fundamental to a higher degree in geography. As a geocapability, the geographical imagination manifests aspects of Nussbaum's capabilities of senses, imagination and thought; emotion; affiliation; other species; and play.

Developing a sensitivity to the way that places and spaces are constructed begins with experience of new places and reflection on this experience. The examples here show how experiencing places through fieldwork can be translated into ways of representing them to others and reflecting on the way that we perceive place, space, landscape, and nature differently. Interestingly, the examples were mostly focussed on first year experiences, revealing the importance of developing this capability early in the university experience, perhaps as a way of transitioning students from experiences of place that are heavily controlled.

"At Universitat Pompeu Fabra, Barcelona in Spain, students are encouraged to use google maps to locate information 'in place' ensuring that students know where to find geographical cultural information beyond the internet such as via archives and recording local memories. This has resulted in new ways of understanding cultural aspects of space

and place, for example using demographic data to understand immigration problems and exploring development in rural areas through local participation and from multiple perspectives.”

Another digital representation is student generated digital stories (France and Wakefield, 2011; Wakefield and France, 2010) using still images, video and podcasts providing the freedom to experiment with novel ways of presenting geographical information and comparing differing views.

“A module delivered collaboratively between the National University of Singapore and the Australian National University innovatively puts students together to work on seminar topics with an emphasis on exchanging cross cultural perspectives on environmental issues. This is backed up with a reflective portfolio for assessment purposes.”

Reflective assignments were identified as a common approach for developing the geographical imagination. Working through discomforts and disorientations, and reflecting on personal growth and development as a student of geography in higher education was central to the use of reflective learning journals.

“First year human geographers at Exeter University, UK are required to keep a reflective learning journal to record their experience of new ways of understanding the world, and their place in the world, that are very different to what they are familiar and comfortable with.”

2. Ethical subject-hood

Geographical education requires that learners examine their own place(s) in the world and the responsibilities these can entail and so develop the geocapability of ethical subject-hood. As the UK’s subject benchmark set out “Geography fosters...empathy and insight (and) awareness of responsibility as a local, national and international citizen with a global perspective.” (QAA benchmark 2014, 12). This geocapability draws upon and enacts Nussbaum’s capabilities of emotion; practical reason; affiliation; other species.

Early university experiences can be used to help students’ develop ethical capabilities. Modules that use enquiry-based learning, for example student groups researching commodity supply chains, can facilitate engagement with ethical issues and provoke thinking about ethical citizenship (Moore & Gilmartin, 2010).

“Students at higher education level in China come from a high school educational experience that is strongly teacher directed, therefore a first-year geography module at Nottingham University’s Ningbo Campus in China introduces a series of debates on environmental issues.”

This active debating encourages engagement with policy and management issues and ethical thinking from a geographical perspective.

Perhaps the most obvious and explicit experience of being a global citizen involves dealing with the cross-cultural encounters that are part of working beyond the university, especially through fieldwork. While 'exotic' and distant locations have become a means of attracting students to courses, many universities contain a wide mix of cultural groups and ethnicities in their immediate vicinity. Sensitivity to other cultural groups in the local area is important for local fieldwork and helps learners appreciate the importance of cultural differences in the construction of different worldviews (Boyd et al., 2008; Haigh et al., 1995). Abbott (2006) suggests that faculty should initiate a dialogue with students about themes such as privilege (and its invisibility) to prepare students for external engagement. Geographers are increasingly using authentic assessments to enhance the meaningfulness of their students' work locally.

"In a final-year undergraduate module at Exeter University, UK, students blog about the creative economy as part of their assessment. The lecturer encourages students to inhabit the role of an informed commentator, using academic skills but writing for a public audience. Through developing their own social media presence (a feature of work in the creative economy) students come to new understandings about their place in the world."

This example shows how replicating real-world processes can generate empathy with other groups, and the public nature of blogging creates channels of communication beyond the university.

Sensitivity to others in the field is a crucial part of preparing for fieldwork in the Global South (Robson and Willis, 2013). Datta (2013) argues that students should be given broad dialogic training in an ethics-based approach to fieldwork to discuss how it is 'shaped by power, positionality and reflexivity' (p16). This might be taught through guided scenarios and role plays to understand the complex ethics of fieldwork negotiations. Faculty can recommend books and films from the study area to provide a sense of cultural context in advance of a visit (Datta, 2013). These strategies may provide a stepping stone to greater awareness about past histories of imperialism and cultural conflict and the shaping of identity which can foster positive values and attitudes towards global citizenship. Following this broad training, a more detailed discussion can take place about student's own and participants' positions within local power structures when they are preparing for and returning from different field based learning contexts (e.g. volunteering, study trips, fieldwork).

Ethical scenarios may extend our students' thinking beyond the limits of the university, local area, and even to global levels beyond the boundaries of geography as a discipline.

"Writing briefing papers aimed at government ministers on contemporary urban and rural issues has been a useful way to engender discussion of a variety of disciplinary perspectives at the University of Winchester and involves human geography, planning, science, and sociology."

Working on interdisciplinary problems enables students of geography to appreciate the significance of their developing disciplinary perspective as they approach ethical issues as a geographer. Healey and colleagues have provided a worked model for the sequential development of ethical teaching across an undergraduate geography degree (Healey et al., 2011) using tutor written scenarios and student produced scenarios. Following comparison with ethical learning in other disciplinary contexts she suggests that ethics should be a programme level outcome (Healey, 2012).

3. Integrative thinking about society and environment

Our third geocapability highlights the importance of the ways geography attunes us to “the complex reciprocal relationships between human societies and the physical, chemical and biological components of the Earth” (QAA 2014, 6). This geocapability manifests multiple capabilities from Nussbaum’s list: senses, imagination and thought; emotion; practical reason; affiliation; and other species.

Kemp et al., (2012) used student-produced podcasts as an innovative way to assess students’ ability to integrate geomorphological data with social and environmental issues and communicate this to a general audience. This approach also helped students develop the capability of communicating with the public in ways that enhanced their understanding of geomorphology and its relation to global and regional issues. While online publishing provides a potentially large public audience, using an authentic group of real clients in a live project adds a further level of authenticity and accountability.

“Client based student projects form part of the teaching of Environmental Impact Analysis at Liverpool University. Real external clients are involved, giving students experience of communicating with the stakeholders involved in planning decisions. This was part of a wider project of conducting an environmental impact assessment (EIA) on a specific area. Students from the module gave a presentation at a ‘Total Environment’ seminar in Chester, UK to an audience consisting of councillors and representatives of various governmental and non-governmental organisations and charities. This allowed the students to engage in an authentic and professional setting.”

Many areas of geography integrate society and environmental concerns. In a hazard management course, students at Oxford Brookes University, UK were asked to make judgements about the effectiveness of the emergency response to a recent environmental disaster of their choice. Fostering their capability of judgement–making, informed by a disciplinary learning about effective hazard management, helped develop students’

geographical knowledge and skills as well as enhancing employability outcomes in terms of justifying beliefs and making 'good' judgements (Hinchliffe and Walkington, 2016).

An international team (Schnurr et al., 2014), used the UN Convention on Biodiversity as a means of developing students' skills in conflict resolution. Through simulation and debate, they ensured that students went through a series of (sometimes uncomfortable) learning experiences to understand the complexity of international decision making. They created a learning environment that was collaborative and mutually beneficial. This type of activity allows students to become a community of learners, committed to encouraging the development of individual voice and the capacity for hearing the voices of others.

Geography teaching can create a learning environment that integrates approaches and methodologies across the sciences, social sciences and humanities. Hartshorne mentioned this interdisciplinary approach as the special mission of geography to "integrate the material that the other sciences study separately" (1939 p. 460). An understanding of how physical and human patterns and processes contribute to globalisation is vital for our future understanding and management of energy, environmental resources and the supply chains of goods and services. Such knowledge empowers us to make changes through informed decisions. Without an understanding of the scientific underpinnings of processes and the co-requisite understanding of human motivations and behaviours in a cultural context, it is difficult to effect change on a scale needed to meet the needs of a population. This knowledge is holistic, not partial and advocates for the importance of geographers delivering a curriculum which has a balance of physical and human geography and a way of communicating geography that values and draws upon both elements of the discipline equally. By prioritising the geocapability of integrating thinking about society and environment, we address head on the dangerous fragmentation of the discipline of geography.

4. Spatial thinking

Fourthly, we propose that spatial thinking is a key geocapability developed by geography higher education. Geography graduates recognise "the pattern and dynamic nature of spatial variation in the earth surface processes, water, landforms, climate, vegetation and soils... (and) the ways in which spatial relations are an inherent and important feature of economic, social, cultural, and political activity." (QAA 2014, 8). Spatial thinking is informed by and develops Nussbaum's capability of senses, imagination and thought.

"At Dalhousie University in Canada a GIS based health study integrates physical and biological measures traditional to a medical approach but adds in a community health approach to include the human built environment, social capital and socioeconomic status.

This example of interdisciplinary learning clarifies how a geographical and particularly a spatial perspective can integrate a variety of different disciplinary knowledges and ways of seeing the world.”

“The design of scenarios, spatial planning problems, simulations and multi-criterion issues in an urban context are used to develop critical spatial thinking at the University of Lisbon in Portugal.”

Personalised enquiry-based learning is common to many of the examples collected, as is the autonomous choice of creative and individual assignment options. This allows students an opportunity to engage in the architectonic or overriding synthetic capabilities that Nussbaum (2011) highlights (i.e. ‘practical reason’ and ‘affiliation’). Spatial thinking not only relates overtly to ‘senses, imagination and thought’ but has great potential to be developed through Nussbaum’s two architectonic capabilities. However, this can only happen when students are asked to personalize spatial thinking, since practical reason and affiliation are personal capabilities. This is possible where coursework tasks encourage students to take control of the area they wish to investigate as an individual, and which allow them the freedom to make choices and be creative, as in the ‘playful’ fieldwork case studies of Phillips (2015).

5. A structured exploration of place

Our final geocapability is the structured exploration of place. Australia’s Curriculum Assessment and Reporting Authority (ACARA) team emphasized that geography is more than a way of seeing or approaching the world, it is an active and “structured way of exploring, analyzing and understanding the characteristics of the places that make up our world, using the concepts of place, space, environment, interconnection, sustainability, scale and change” (Maude, 2013 p 254). The UK’s QAA subject benchmark statement for geography mentions that “Curiosity and enquiry...the development of discerning observation and measurement, and the recognition of the importance of scale” are essential for geographers (QAA, 2014 p 7). This geocapability develops and enacts Nussbaum’s capabilities of senses, imagination and thought; emotion; practical reason; and other species.

Simm and David (2002) explored the effectiveness of a local urban river restoration project with groups of students who devised a collective methodology for the class, collecting data in the field that was then shared with the whole group. In a similar way, allowing students to take ownership of observations but in a structured way took place at Aberystwyth University in Wales where staff used twitter to mediate students’ experience of places, benefitting from reflections on their positionality.

“Students were out in the field in a variety of locations practicing participant observation as part of their research methods training. The students tweeted field observations allowing immediate feedback from instructors (in the classroom) and other learners (in different field locations).”

The Real Utopias in Socially Creative Spaces (RUCAS) project, in Portugal explores the concept of the creative city and the possibilities for reconciling the contradictory stimuli of competitiveness with social inclusion and territorial cohesion (RUCAS, 2014).

“A particular focus is on the role which might be played by the arts and artists in the creation of a utopian city. The involvement of the arts in creative cities can be fundamental in interrogating stereotypes and accepted rules, which may retard social innovation. This project involves both Masters and PhD students in reviewing methods and outcomes through research-based learning.”

Using Place, Culture and Identity as central themes, students at the University of Gloucestershire were encouraged to engage in research-based learning to explore the urban landscape and to reflect critically on urban issues through visual research methods (e.g. photographic survey and critical representation). Given the freedom to select the format and number of images allowed students to be creative and to innovate, as well as being encouraged (and assessed) on the justifications of their approach (Hall, 2009). These examples of structured exploration allow for highly personalised learning but within the context of a wider reference group with whom to make comparisons and engage in dialogue and reflection.

Pedagogic implications of developing geocapabilities in the curriculum

Several pedagogic practice themes recur in the examples collected from the INLT participants. Engaging ‘students as researchers’ (Walkington, 2015) and adopting research based learning as a pedagogy of participation (Lambert, 2009) is one approach being applied in diverse contexts. There has been a gradual realisation that embedding research opportunities needs to start much earlier in a student’s academic experience (Walkington, et al., 2011). Authenticity is a second theme, several contributors emphasise working with real clients in the local community on real projects (adopting a ‘live project pedagogy’ see Anderson and Priest, 2014) and using authentic audiences to disseminate student research findings. Undoubtedly, it is engagement with and intervention in real world issues, at all scales from local to global, that enables the geography student to see the world as an integrated dynamic system. This also helps develop the geographical imagination, which is furthered by the application of geography’s main signature pedagogy, fieldwork (Hovorka

and Wolf, 2009). This pedagogic approach could move from a position where 'subjects' or 'human participants' are researched, to a situation where direct action can result from students working with clients in partnership, to develop collaborative relationships that may endure beyond the research process and challenge students to think as citizens. Where learning moves beyond the curriculum, there is the potential to transform faculty-student relationships from supervision to something more akin to mentoring, a real-world and authentic approach to developing citizenship. Innovative assessments allow students to develop their capabilities such as creative thinking within a disciplinary context.

Teaching about global environmental issues may appear like a series of insurmountable problems leading students to become disaffected and disempowered. Robertson and Walkington (2009) studied the environmental attitudes of university students and showed that environmental concern is a powerful predictor of only selected types of pro-environmental behaviour. The challenge for geography educators is to educate for environmental concern in a way that inspires positive action rather than disempowerment (Haigh, 2016). They also postulated that changing behaviour necessitates the creation of a social norm through dialogue, so that dialogic approaches, such as through debating ethical dilemmas and role-playing scenarios are important.

Implications for faculty development

This section considers academic staff/faculty development based on an understanding that teaching activities in geography in higher education encompass a wide variety of pedagogic approaches. For some, adopting a capabilities approach to higher education geography will require changes to: the curriculum; to interactions with students; to the content chosen for teaching and assessment; and to the pedagogic approaches adopted. Teaching in higher education, including geography, should focus on more than knowledge and skills and consider values, attitudes and capabilities for resilience in the future.

Kinchin recently introduced the concept of pedagogic frailty (Kinchin et al., 2016), suggesting that the cumulative pressures of a changing higher education context for academics can act to inhibit the capacity of faculty members to change their teaching practice (Kinchin & Francis, 2017). Entering a collective dialogue to consider a capabilities approach in geography is a resilient response to this potential frailty.

Engaged learning offers more than disciplinary knowledge, it also helps equip learners with the capabilities of communication in its many dimensions, of team-working, which requires emotional intelligence, compassion and ethical sensitivity as well as performative social skills, and the resilience that stems from self-confidence and self-belief. To facilitate this,

faculty should integrate social, emotional and academic learning in their teaching, develop and demonstrate reflective practice, encourage confidence building, cultivate self-awareness and self-sufficiency, as well as openness and respect for others (Weaver and Wilding, 2013; Nussbaum, 2011). As the INLT participant examples highlighted, the pedagogic implications are therefore a greater commitment to partnership and the co-production of knowledge with students, allowing them to take risks, develop research-based learning and reflect on their geographical imagination. To support academics and support staff, we offer in Table 1 a framework to promote pedagogic resilience via a set of faculty development discussion questions to engage in this debate at all levels with managers, academic colleagues and students.

Faculty development discussion questions	
For Managers:	
	<ul style="list-style-type: none"> • What are the channels for making the capabilities argument to university managers?
	<ul style="list-style-type: none"> • Can geocapabilities provide a framework for an emancipatory 'student experience'?
For Faculty teams:	
	<ul style="list-style-type: none"> • How do we change ownership of curriculum content from individuals to collectives?
	<ul style="list-style-type: none"> • What would convince your geography teaching team to embed a geocapabilities approach across the whole programme, rather than in just one or more modules that could be vulnerable to staff changes?
	<ul style="list-style-type: none"> • How can we articulate, record and assess geocapabilities without them becoming 'hollow' accountability mechanisms?
	<ul style="list-style-type: none"> • How can we use institutional structures to create spaces to discuss programme level outcomes (outside of the distractions of agenda items like staffing, timetabling, student numbers, etc.).
For Students:	
	<ul style="list-style-type: none"> • What are the challenges and possibilities for communicating with our students about geocapabilities?

	<ul style="list-style-type: none"> • What would help to ease the transition in developing geocapabilities from schools to university?
	<ul style="list-style-type: none"> • What strategies could you employ to communicate geocapabilities within your institution and to your students?

Table 1: A framework to promote pedagogic resilience

Conclusion

This paper has shown how in the neoliberal university, conversations about capabilities are threatened by new agendas that replace disciplinary education with more generic skills and content in producing institutional graduate attributes. The paper provides a starting point for dialogue in geography, and other disciplines to explain what they add to a university education beyond a body of content and skills. Through incorporating geocapabilities holistically into degree programmes, faculty may overcome the threat of pedagogic frailty (Kinchin & Francis, 2017) and collaboratively build resilient, future oriented programmes. These programmes will produce geo-capable graduates who will leave university thinking as geographers, but more importantly thinking like global citizens through a geographical lens.

As the literature and examples have highlighted, a lifelong learning approach is important for creating disciplined, synthesising and creative intellects as well as for cultivating a respectful and ethical character. One approach to this, at the programme level, is to focus on the capabilities geography students need to develop (and continue to develop), in addition to the knowledge and skills they should own on graduation. For example, helping learners to develop critical self-awareness and openness to new ideas and alternative viewpoints, developing the capability to operate (and co-operate) within the requirements of democratic responsibility, and the ability to think and act as global citizens. It is important for national and institutional agendas to recognize that such capabilities extend beyond a student's time at university and to communicate to students, explicitly, that they are learning more than subject content and methods, but also capabilities that will require ongoing development and exploration throughout their lives.

The Association of American Geographers book 'Practicing Geography: Careers for Enhancing Society and the Environment' (Solem, Foote, and Monk, 2013) features profiles of professional geographers who reflect on the role of their discipline in their professional lives working in academic, business, government, and nonprofit/NGO settings. There are

many examples of how these professionals have used geography to change practices in their organizations, from introducing sustainability principles to corporate planning. The profiles convey the value of geography in thinking about relationships between disciplinary knowledge, career opportunities, and making a difference in communities and workplaces.

Hopefully, this paper will begin a dialogue to ensure that a capabilities approach is integrated into higher education curricula in a resilient way, rather than a piece-meal approach where it becomes vulnerable by being parcelled into discrete modules. It will become increasingly important for disciplines, including geography, to be clear about the specific contributions they make to their graduates' capabilities and their capacities for lifelong learning.

References

Abbot, D. (2006). Disrupting the 'whiteness' of fieldwork in geography. *Singapore Journal of Tropical Geography*, 27, 326-41.

Anderson, J. & Priest, C. (2014). 'Developing an inclusive definition, typological analysis and online resource for Live Projects', In: Harriet Harriss and Lynnette Widder (eds). *Architecture Live Projects. Pedagogy into practice*, Oxford: Routledge.

Barrie, S. C. (2004). A research-based approach to generic graduate attributes policy. *Higher Education Research & Development*, 23(3), 261-275.

Barrie, S. C. (2006). Understanding what we mean by generic attributes of graduates. *Higher Education*, 51(2), 215–241.

Boni, A. & Walker, M. (eds.) (2013). *Human Development and Capabilities: Re-imagining the university of the twenty-first century*. New York: Routledge.

Boyd, W., Healey R., Hardwick, S., Haigh, M., Klein, P., Doran, P., Trafford, J., & Bradbeer, J. (2008). 'None of us sets out to hurt people': The ethical geographer and geography curricula in higher education. *Journal of Geography in Higher Education*, 32(1), 37–50.

Brown, J. & Isaacs, D. (2005). *The World Café: Shaping our futures through conversations that matter*, San Francisco: Berrett-Koehler.

Byram, M. (1997). *Teaching and assessing intercultural communicative competence*. Clevedon, UK. Multilingual Matters.

Carter, E. D. & J. Housel. 2013. "Stand-Alone Geographers in the North American Academy: A Survey of Perceptions and Concerns." *Professional Geographer*, 65 (2), 230-46.

- Chan, W. F. (2011). "Mourning Geography: A Punctum, Strathclyde and the Death of a Subject." *Scottish Geographical Journal*, 127 (4), 255-66.
- Datta, A. (2013). *Negotiating Differences: A resource for enhancing learning and capacity building in fieldwork*. York: Higher Education Academy. Available online at: http://www.heacademy.ac.uk/assets/documents/disciplines/GEES/GEES_Negotiating_Differences.pdf
- Delors, J., Al Mufti, I., Amagi, I., Carneiro, R., Chung, F., Geremek, B., Gorham, W., Kornhauser, A., Manley, M., Padrón Quero, M., Savané, M-A., Singh, K., Stavenhagen, R., Suhr, M.W., & Zhou Nanzhao. (1996). *Learning: the treasure within*. Paris: UNESCO. Available online at: <http://www.unesco.org/delors/highlights.htm> (accessed October 2014).
- Demeritt, D. (2000). The new social contract for science: Accountability, relevance, and value in US and UK science and research policy, *Antipode*, 32 (3). 308-329.
- DiBiase, D., Corbin, T., Fox, T., Francica, J., Green, K., Jackson, J., Jeffress, G., Jones, B., Jones, B., Mennis, J., Schuckman, K., Smith, C., & Van Sickle, J. (2010). The New Geospatial Technology Competency Model: Bringing Workforce Needs into Focus. *Urban and Regional Information Systems Association Journal* 22 (2), 55-72.
- Dowling, R. 2008. Geographies of identity: labouring in the 'neoliberal' university. *Progress in Human Geography*, 32 (6), 812-20.
- Dyer, S., Walkington, H., Williams, R. Morton, K. and Wyse, S. (2016). Shifting landscapes: from coalface to quick sand? Teaching Geography, Earth and Environmental Sciences in Higher Education. *Area*, 48(3), 308-316.
- France, D & Wakefield K (2011) How to produce a digital story, *Journal of Geography in Higher Education*, 35(4), 617-623.
- Freire, P. (1998). *Pedagogy of Freedom: Ethics, Democracy and Civic Courage*. Lanham MD, Rowan and Littlefield.
- Furedi, F. (2005). A degree is now a rite of passage: welcome to the credentialist academy. *Times Higher Education Supplement* July 17, 2005. Available online at: <http://www.frankfuredi.com/articles/riteofpassage-20050617.shtml> (accessed July 2006).
- Gardner, H. (2006). *Five Minds for the Future*. Cambridge, MA, Harvard Business Press.
- Gill, R. (2009). "Breaking the silence: The hidden injuries of neo-liberal academia." In R. Flood & O. Gill. (Eds) *Secrecy and silence in the research process: Feminist reflections*, London: Routledge.

- Gregory, D. (2000). The Geographical Imagination. in Johnson, R.J., Gregory, D., Pratt, G. & Watts, M. (eds) *The Dictionary of Human Geography* 4th Edition London, Blackwell pp.298-301.
- Haigh, M. (2016). Fostering Global Citizenship – tree planting as a connective practice. *Journal of Geography in Higher Education*, 40 (4), 509-530.
- Haigh, M & Clifford, V. (2011). Integral Vision: a multi-perspective approach to the recognition of Graduate Attributes. *Higher Education Research & Development* 13, 5, pp 573-584.
- Haigh, M.J., Reville, G. & Gold, J.R. 1995. The 'Landscape Essay': exploring pluralism in environmental interpretation. *Journal of Geography in Higher Education*, 19,1, pp 41-55).
- Hall, T. 2009. The camera never lies? Photographic research methods in human geography *Journal of Geography in Higher Education*, 33 (3), 453-462.
- Hanvey, R. G. (1975). An attainable global perspective. New York. American Forum for Global Education (2004). Retrieved on 21 July, 2014 from http://www.globaled.org/an_att_glob_persp_04_11_29.pdf
- Hartshorne, R. (1939). The nature of geography: A critical survey of current thought in the light of the past. *Annals of the Association of American Geographers*, 29 (3-4),173-482.
- Healey, R. L. (2012). Ethical thinking in a disciplinary context: the ethical development of undergraduates and expectations of tutors in the arts, social and pure sciences. MA Thesis. University of Chester [online] available from:<http://www.chester.ac.uk/sites/files/chester/Dissertation%20Final.pdf>
- Healey, R. L., Ribchester, C., and Ross, K. (2011). 'The Ethical Student': Enhancing the Teaching of Ethics in the Undergraduate Curriculum. Chester: University of Chester Learning and Teaching Institute. [online] available from: <http://www.chester.ac.uk/sites/files/chester/Ethical%20Student.pdf>
- Hinchliffe, G. & Terzi, L. (2009). Introduction to the special issue 'Capabilities in Education,' *Studies in Philosophy and Education*, 28 (5), 387-390.
- Hinchliffe, G. and Walkington, H. (2016). 'Cultivating the art of judgement in students' In: Tomlinson, M and Holmes, L. Graduate employability in context: theory research and debate. London: Palgrave Macmillan.
- Holmes, J. H. (2002). "Geography's emerging cross-disciplinary links: Process, causes, outcomes and challenges." *Australian Geographical Studies*, 40 (1), 2-20.

- Holmes, J. (2009). Fifty years of disciplinary flux within human geography: Changing sociocognitive subdisciplines and subcultures. *Australian Geographer*, 40 (4), 387-407.
- Hovorka, A. J., & Wolf, P. A. (2009). Activating the classroom: Geographical fieldwork as pedagogical practice. *Journal of Geography in Higher Education*, 33 (1), 89-102.
- Kemp, J., Mellor, A., Kotter, R., & Oosthoek, J. W. (2012). Student-produced podcasts as an assessment tool: an example from geomorphology, *Journal of Geography in Higher Education*, 36 (1) 117-130.
- Killick, D. (2017). *Internationalization and Diversity in Higher Education: Implications for Teaching, Learning and Assessment*. London, Palgrave Macmillan.
- Killick, D. (2015). *Developing the Global Student: Higher Education in an Era of Globalization*. Abingdon: Routledge.
- Kinchin, I. M., Alpay, E., Curtis, K., Franklin, J., Rivers, C., & Winstone, N. (2016). Charting the elements of pedagogic frailty. *Educational Research*, 58 (1), 1-23.
- Kinchin, I. M. & Francis, R. A. (2017). Mapping pedagogic frailty in geography education: a framed autoethnographic case study. *Journal of Geography in Higher Education*, 41 (1), 56-74.
- Klein, P., Pawson, E., Solem, M., & Ray, W. (2014). Geography Education for “An Attainable Global Perspective”. *Journal of Geography in Higher Education*, 38 (1), pp. 17-27.
- Kuklys, W. (2005). Amartya Sen's capability approach: theoretical insights and empirical applications. Berlin: Springer.
- Lambert, D., Solem, M., & Tani, S. (2015). Achieving human potential through geography education: a capabilities approach to curriculum making in schools. *Annals of the Association of American Geographers*, 105 (4), 723-735.
- Mager, S. & Spronken-Smith, R. (2014). Graduate attribute attainment in a multi-level undergraduate geography course. *Journal of Geography in Higher Education*, 38 (2), 238-250.
- Maude, A. (2013). The Vision of Geography underlying the Australian Geography curriculum. *Review of Geographical Education Online* 3 (3), 253-265.
- McLeod, J. (2011) Student voice and the politics of listening in higher education, *Critical Studies in Education*, 52 (2), 179-189.
- Moore, N. & Gilmartin, M. (2010). Teaching for better learning: a blended learning pilot project with first-year geography undergraduates, *Journal of Geography in Higher Education*, 34 (3), 327-344.

Monk, J. (2000). Looking Out, Looking In: The 'Other' in the Journal of Geography in Higher Education. *Journal of Geography in Higher Education*, 24 (2), 163-177.

Nally, D. (2011). The biopolitics of food provisioning, *Transactions of the Institute of British Geographers*, 36 (1), 37-53.

Nussbaum, M. (1997) Kant and Cosmopolitanism, in James Bohman and Matthias Lutz-Bachmann (edit.), *Perpetual Peace: Essays on Kant's Cosmopolitan Ideal*. Cambridge, Massachusetts: The MIT Press.

Nussbaum, M. (2011). *Creating Capabilities; the Human Development Approach*. Harvard, Belknap.

Nussbaum, M. (2002). Education for citizenship in an era of global connection. *Studies in Philosophy and Education*, 21(4-5), 289-303. Nussbaum, M. & Sen, A. (Eds) (1993). *The Quality of Life*. Oxford: Clarendon Press.

O'Neill, O. (2015). Integrity and quality in universities: Accountability, excellence and success. *Humanities*, 4 (1), 109-117.

Orr, D.W. (1994). *Earth in mind: On education, environment, and the human prospect*. Washington, DC: Island Press.

Phillips, R. (2015). Playful and multi-sensory fieldwork: seeing, hearing and touching New York, *Journal of Geography in Higher Education*, 39 (4), 617-629.

Porter, T., M. (1995). *Trust in Numbers: The pursuit of Objectivity in Science and Public Life*. New Jersey: Princeton University Press.

Powell, W. W. & Snellman, K. (2004). "The knowledge economy." *Annual Review of Sociology*, 30, 199-220.

Purcell, M. (2007). "'Skilled, cheap, and desperate": Non-tenure-track faculty and the delusion of meritocracy." *Antipode*, 39 (1), 121-43.

Quality Assurance Agency (2014). "Geography subject benchmark statement"
<http://www.qaa.ac.uk/en/Publications/Documents/SBS-consultation-geography.pdf>
[accessed 12/12/16]

Real Utopias in Socially Creative Spaces Project [RUCAS] (2014) *Real Geographies Socially Creative Spaces* available at <http://rucasproject.wordpress.com/> [accessed 10/10/14]

Roberts, S. M. (2000). "Realizing Critical Geographies of the University." *Antipode*, 32 (3), 230-44.

- Robertson, S. & Walkington, H. (2009). Recycling and waste minimisation behaviours of the transient student population in Oxford: results of an online survey. *Local Environment: The International Journal of Justice and Sustainability*, 14 (4), 285-296.
- Robson, E. and Willis, K. (2013). Field courses in the Global South for Geography, Earth and Environmental Science Students in UK Higher Education. York: Higher Education Academy. Available online at:
<http://www.heacademy.ac.uk/assets/documents/disciplines/GEES/GEES-Fieldcourse.pdf>
- Sanghi, S. (2007). *The handbook of competency mapping: understanding, designing and implementing competency models in organizations*. New Delhi, Response Books (SAGE).
- Schnurr, M. A., De Santo, E. M., & Green, A. D. (2014). What do students learn from a role play simulation of an international negotiation? *Journal of Geography in Higher Education*, 38 (3), 401-414.
- Sidaway, J. D. & Johnston, R. J. (2007). Geography in Higher Education in the UK. *Journal of Geography in Higher Education*, 31 (1), 57 - 80.
- Simm, D.J. & David, C.A. (2002). Effective teaching of research design in physical geography: a case study. *Journal of Geography in Higher Education*, 26 (2), 169-180.
- Solem, M. N., I. Cheung and M. B. Schlemper. (2008) Skills in professional geography: an assessment of workforce needs and expectations. *Professional Geographer* 60: 356–373.
- Solem, M., Foote, K., & Monk, J. (eds.) (2013). *Practicing Geography: Careers for Enhancing Society and the Environment*, 198-209, Upper Saddle River, NJ: Pearson Education.
- Solem, M., Kollasch, A. & Lee, J. (2013). Career goals, pathways and competencies of geography graduate students in the USA, *Journal of Geography in Higher Education*, 37 (1): 92-116.
- Spronken-Smith, R. (2013). "Toward securing a future for geography graduates." *Journal of Geography in Higher Education*, 37 (3), 315-26.
- Su, Y. (2014). Self-directed, genuine graduate attributes: the person-based approach. *Higher Education Research & Development*, 33 (6), 1208-1220.
- UNESCO (2002). *Learning to Be: A holistic and integrated approach to values education for human development: Core values and the valuing process for developing innovative practices for values education toward international understanding and a culture of peace*. Bangkok: UNESCO Asia and Pacific Regional Bureau for Education, UNESCO-APNIEVE Sourcebook. 2, 189pp. <http://unesdoc.unesco.org/images/0012/001279/127914e.pdf>

- Wainwright, E., Barker, J., Ansell, N., Buckingham, S., Hemming, P., & Smith, F. (2014). "Geographers out of place: Institutions, (inter)disciplinarity and identity." *Area*, 46 (4), 410 – 417.
- Wakefield, K., & France, D. (2010). Bringing digital stories into assessment, *Planet* 23, 63-67.
- Walkington, H. (2015). *Students as researchers*. York: Higher Education Academy.
- Walkington, H., Griffin, A. L., Keys-Mathews, L., Metoyer, S. K., Miller, W. E., Baker, R., France, D. (2011). Embedding Research-Based Learning Early in the Undergraduate Geography Curriculum. *Journal of Geography in Higher Education*, 35 (3), 1-16.
- Weaver, L. & Wilding, M. (2013). *The Five Dimensions of Engaged Teaching: A Practical Guide for Educators*. Bloomington IN, Solution Tree.
- Whalley, W., Saunders, A., Lewis, R., Buenemann, M., & Sutton, P. (2011). Curriculum development: Producing geographers for the 21st century. *Journal of Geography in Higher Education*, 35(3), 379–393.