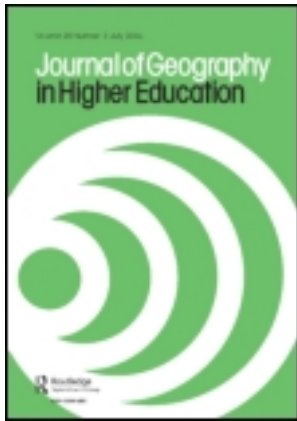


This article was downloaded by: [W. Brian Whalley]

On: 26 July 2011, At: 02:42

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Journal of Geography in Higher Education

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/cjgh20>

Curriculum Development: Producing *Geographers* for the 21st Century

W. Brian Whalley^a, Angharad Saunders^b, Robin A. Lewis^c,
Michaela Buenemann^d & Paul C. Sutton^e

^a School of Geography, Archaeology and Palaeoecology, Queens University Belfast, UK

^b Department of Geography, University of Glamorgan, UK

^c School of Geography & Development, University of Arizona, USA

^d Department of Geography, New Mexico State University, USA

^e Department of Geography, University of Denver, USA

Available online: 26 Jul 2011

To cite this article: W. Brian Whalley, Angharad Saunders, Robin A. Lewis, Michaela Buenemann & Paul C. Sutton (2011): Curriculum Development: Producing *Geographers* for the 21st Century, *Journal of Geography in Higher Education*, 35:3, 379-393

To link to this article: <http://dx.doi.org/10.1080/03098265.2011.589827>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan, sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.



Curriculum Development: Producing *Geographers* for the 21st Century

W. BRIAN WHALLEY*, ANGHARAD SAUNDERS**, ROBIN A. LEWIS†,
MICHAELA BUENEMANN‡ & PAUL C. SUTTON§

*School of Geography, Archaeology and Palaeoecology, Queens University Belfast, UK, **Department of Geography, University of Glamorgan, UK, †School of Geography & Development, University of Arizona, USA, ‡Department of Geography, New Mexico State University, USA, §Department of Geography, University of Denver, USA

ABSTRACT *We take a fresh look at geography curricula and their appropriateness to the demands of the 21st century. We reflect on the purpose, content and relevance of undergraduate geography curricula in an age of 'supercomplexity'. Geography curricula, by their nature, are varied and multiple, with different countries often privileging different types of geographical knowledge and skills. The paper emerges from a group of US and UK geographers and so focuses mainly upon Anglo-American geographical traditions. We highlight the need to provide generic and employability skills as part of the rapidly changing requirements into which geographical skills and knowledge need to be integrated. The knowledge base may well change according to circumstances (for example, adaptation to environmental change) that will require geographers to be able to contribute to the community and thereby enhance the overall stature of geography. A geographical outlook, reflecting space and change, remains at the heart of geography and can provide a unique selling point for its study. Graduates will need to promote their geographical knowledge and skills in order to cope with employment possibilities, so instructors will need to diversify their teaching methods to embrace active learning and problem-orientated approaches to the delivery of geographical curricula.*

KEY WORDS: Geography curricula, undergraduate education, geographical skills, geographical knowledge, spatial studies

Introduction: The Need for Change?

In the 40 years since Peter Gould famously called on geographers to reflect on and review their curricula (Gould, 1973), there has been a steady trickle of curricula reviews and innovations (Cutter *et al.*, 2002; Richardson & Solis, 2004; National Research Council, 2010). It now seems timely to revisit the issue of curricula, for as the 21st century

Correspondence Address: W. Brian Whalley, School of Geography, Archaeology and Palaeoecology, Queens University Belfast, Belfast BT7 1NN, UK. Email: b.whalley@qub.ac.uk

ISSN 0309-8265 Print/1466-1845 Online/11/030379-15 © 2011 Taylor & Francis
DOI: 10.1080/03098265.2011.589827

advances, the meaning, purpose and nature of higher education are undergoing profound changes. These changes are particularly subject to external pressures, especially governmental, as well as student satisfaction.

One of the most significant changes has been the progressive opening up of universities to an array of globalizing forces and economic pressures. This has taken different forms around the world (Kong, 2007; Tapiador & Martí-Henneberg, 2007; Li *et al.*, 2007), but the result has been a growing recognition that universities exist within a competitive market and must play a pivotal role in their national economies. At the same time, we live in an age of 'supercomplexity' (Barnett, 2000) and this poses challenges to our ways of knowing as well as students' geographical education. Since Gould's call to arms our world has been transformed by the World Wide Web and the global interconnectedness and democratizing of knowledge it permits (Giannotti & Pedreschi, 2008). Consequently, 'knowledge' is now more uncertain and universities no longer have any privileged access to it, and so they must now validate their social role and purpose more explicitly. Taken together, these changes have far-reaching implications for geography curricula; they demand that they become more outward-facing, more demand-led and more outcome-orientated compared with the current, rather introspective and research-led, agenda.

Following Gould, Harvey (1974) outlined a public policy position but in the face of current changes, some geographers have again questioned what the discipline is, what it means and what it should be (e.g. Martin, 2001; Dorling & Shaw, 2002; Thrift, 2002; Hanson, 2004; Ward, 2005). At the heart of these debates is a recognition of geography's diversity, but this is tempered by a wish to ensure the discipline's continued relevance and survival within an increasingly competitive higher education sector. Thus, where Martin (2001) notes how cultural and postmodern approaches have enriched the discipline, he worries that this has been theoretical rather than practical, with the result that geographers 'know', but cannot 'do'. This has implications for professional geographers in research as well as for providing a geographical education that employers deem relevant.

This paper takes up these challenges and concerns as they relate to the discipline's curricula. In recognizing that higher education has changed since Gould's time and is currently undergoing profound changes in many parts of the world, it traces how these changes are feeding into, or need to feed into, curricula design. It begins by reflecting on what a curriculum means and where and how it is followed. We then explore what a 21st century geographer (21CG) should look like and how we, as geography educators, can help create and develop geographers for the 21st century.

The 'What' and 'Where' of Curricula

It is not always clear what is meant by a 'geography curriculum'. According to Fraser and Bosanquet (2006), it can mean several things, with understandings of curriculum ranging from the overall degree structure, through the manner in which it is taught, to the actual make-up of the units or modules of study. This lack of consensus has led Barnett and Coate (2005) to argue that curriculum is something that the higher education sector has yet to fully comprehend. This is perhaps unjust, for diversity does not equate with lack of understanding, rather it implies multifarious ways of doing and knowing. Jenkins (1998) considered the various components that may affect curricula (Figure 1) showing the complexity involved. In this paper, we identify some aspects that have a particular bearing on adjustments of curricula given Barnett's (2000) supercomplexity.

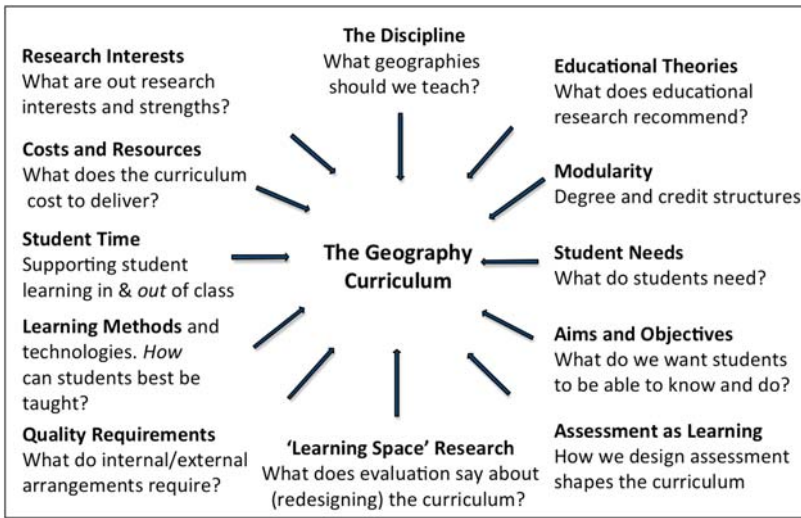


Figure 1. A model (the 'Ouija model') of course or programme design after Jenkins (1998).

It is abundantly clear, at both a national and institutional level, that curricula have changed since Jenkins' approach to curriculum design was published. In the United States, Geographical Information Systems (GIS) occupies a prominent position within undergraduate geography curricula (Murphy, 2007). In Australia, the gradual erosion of geography departments has created degree programmes that are reliant upon, and shaped by, other subjects (Gibson, 2007); and in South Africa, geography curricula have become increasingly localized, focusing around the region's development challenges rather than those topics popular within the Anglo-American geographical tradition (Mather, 2007). Moreover, at an institutional level, curricula often reflect the expertise of staff, and where departments are small curricula are inescapably limited or diluted of their 'geography' (Gibson, 2007).

Curricula, then, are creatures of circumstance; they are influenced by national needs, histories and political investment as well as an institutional inertia. In the UK, for instance, curricula are increasingly being shaped by government-driven skills and employability agendas. Consequently, it becomes difficult, if not impossible, to determine what geography curricula 'should be', for they are products of time and place. This does not, however, close down discussion of curricula change within the discipline for, despite their differences, these visions all acknowledge that the essence of a curriculum lies in the relationship between an educational goal and the means and methods for reaching this goal. The difference, of course, is in determining what this goal is and how it is to be achieved.

What Does a 21CG Look Like?

To begin thinking about curricula change, we undertook a small exercise at the INLT meeting in Washington DC in 2010 to help identify what participants believed to be the most important skills/attributes and knowledge bases that a geography graduate should have in the 21st century (Table 1). On the whole, participants found it easier to identify skills and attributes than they did knowledge. It was particularly interesting that many of

Table 1. Individual suggestions of ‘Knowledge’ and ‘Skills or Attributes’ requirements for an undergraduate geography degree

Knowledge	Skills or Attributes
<ul style="list-style-type: none"> • Non-knowledge specific 	<ul style="list-style-type: none"> • Written communication • Critical thinking • Making decisions on incomplete information
<ul style="list-style-type: none"> • Climate change—impacts, socio/political implications • Sustainability • Hazard management and risk assessment 	<ul style="list-style-type: none"> • Making a decision with limited information • Self-efficacy
<ul style="list-style-type: none"> • Social justice • Social inequality/exclusion (modern way) • Citizenship 	<ul style="list-style-type: none"> • Information and new media literacy • Presentation and communication • Critical thinking and metacognition
<ul style="list-style-type: none"> • Spatial context/connection • Awareness/understanding connections (e.g. Tragedy of the Commons) 	<ul style="list-style-type: none"> • Social competence • Citizenship • Fluency: technical, numerical, information and writing
	<ul style="list-style-type: none"> • Critical ethical thinking
<ul style="list-style-type: none"> • Consequences of human action on environment • At least superficial awareness of another culture • Connection of climate change to culture 	<ul style="list-style-type: none"> • Cultural understanding of maps • Effective written communication
<ul style="list-style-type: none"> • Awareness of how global processes affect local spaces 	<ul style="list-style-type: none"> • Skill: ability to work with/final analyse spatial data • Attribute: curiosity in the local/world affairs and connections
<ul style="list-style-type: none"> • Cultural coherence (local to global) • Population/settlement patterns • Environmental/human impacts 	<ul style="list-style-type: none"> • Writing • Map creation/GIS spatial • Oral communication
<ul style="list-style-type: none"> • Relevance of geographical understanding of world events • Human–environment dependency/relationship • Contribution of geographers to public life 	<ul style="list-style-type: none"> • Independent thinking • Self-motivated • Communication skills
<ul style="list-style-type: none"> • Patterns/processes are dynamic, how to go about understanding the past through future • Scale 	<ul style="list-style-type: none"> • How to go about finding and obtaining information and usable data
<ul style="list-style-type: none"> • Climate change • Human evolution and population of the Earth • Sustainability and development 	<ul style="list-style-type: none"> • Pattern interpretation • Good map design • Inquiry—good questioning and answering
<ul style="list-style-type: none"> • Resources • Climate • Development/inequality 	<ul style="list-style-type: none"> • Information literacy (finding, managing, assessing)

Table 1. *Continued*

Knowledge	Skills or Attributes
	<ul style="list-style-type: none"> • Use and interpret output of geospatial technology: GIS, RS • Apply critical and reflexive thinking • Use and apply (analyse) qualitative and quantitative
<ul style="list-style-type: none"> • Space and scale . . . particularly the latter 	<ul style="list-style-type: none"> • Skills to respond to issues are the key
<ul style="list-style-type: none"> • Global dynamics of specialty area • Familiarity with one cognate field • Awareness of geography in international context 	<ul style="list-style-type: none"> • Interdisciplinary collaboration • Public advocacy for geography • Mentoring
<ul style="list-style-type: none"> • Adapting to climate change • Globalization and its discontents • Cross-cultural understandings 	<ul style="list-style-type: none"> • Integration • Reading skills (for understanding) • Reflection
<ul style="list-style-type: none"> • Cultural diversity • Models of community engagement • Ethical practice 	<ul style="list-style-type: none"> • Conflict resolution • Decision making • Cross-cultural communication skills
<ul style="list-style-type: none"> • Basically knowledge to gain knowledge • Understanding of potential consequences of actions 	<ul style="list-style-type: none"> • Synthesis of information from diverse sources • Carrying out tasks from start to finish • Critical reflection
<ul style="list-style-type: none"> • Solid base of general knowledge in geography • Awareness of multivocality (no absolute values) • Deep knowledge in different areas in geography and beyond 	<ul style="list-style-type: none"> • Information retrieval • Produce/create knowledge, including creativity • Dissemination of knowledge
<ul style="list-style-type: none"> • Regional differences and their relationship • Global approach • Case of subject 	<ul style="list-style-type: none"> • GIS literacy • Research writing • Critical approach
<ul style="list-style-type: none"> • Environmental change and human response • Development and conservation • Cultural elements, difference/assimilation, etc. 	<ul style="list-style-type: none"> • Critical thinking • Clear argumentation • Ability to see issues from other people's viewpoints

Notes: At the 2010 Meeting of the International Network for Learning and Teaching Geography in Higher Education held in Washington DC, participants from an international background, although largely from the USA–UK, were asked to indicate their two to three key requirements for an undergraduate degree. These contributions are paired in rows. No attempt was made to provide a statistical survey but the paper notes the diversity of opinion what should be in geography curricula. It is noteworthy, however, that, as well as spatial attributes, aspects such as citizenship and cultural diversity are considered important as well as environmental and human impacts. A question remains as to how this diversity of requirements should be included in any one degree programme.

these skills/attributes were generic rather than geography specific, for instance critical thinking, decision making and communication skills. In terms of geographical knowledge, issues of scale, difference, sustainability and climate change manifested themselves quite prominently. These were overlain by an insistence on understanding the world as an integrated and interconnected whole.

Table 1 suggests that there is some agreement over what a 21CG should look like, but this agreement is product, rather than process, orientated. It is concerned with the goal and not with the means and methods for reaching this goal. This is to be expected, for it is at the level of curriculum practice that differences within and across space are more likely to emerge. As Hanson (2004) observes, the questions that motivate us as geographers emerge from our place, time and situation. We can agree that geographers are interested in place, space and time, but the nature of this interest, the questions that it prompts and the manner in which we explore and pursue these bear the indelible mark of our individual life experiences. It is unsurprising, therefore, that many of the previous meditations on the 'what' of geography focus on broad themes, areas and competencies, rather than specific aspects of geographical knowledge and the means for attaining them.

In light of this, what is the 21CG and how should geography curricula be shaped to nurture and develop it? We can, like many before us, begin to identify the knowledge, understanding and skills we consider crucial to a geography curriculum. For instance, if we consider Table 1, scale is seen as an important component of geographical knowledge. Skole (2004) argues that geography has tended to look at large area or global scale data but has often been blind to the way processes play out at the level of small areas and fine scales. But in physical geography's examination of hazards, for example, locality studies are important, as well as in a growing focus on everyday geographies (Massey, 1991; Cooke, 2008), scale is important for it makes geographers reflect on the very nature of their geographical knowledge.

Geography, for much of the late 20th century, became quite fragmented as different sub-disciplines proliferated. The result, Golledge (2002) argues, was a lack of integrative thinking. Scale offers a way out of this impasse, for it, like the concept of region before it, brings together the complexities of the global and the local (alongside the national, federal and regional). Yet we need to be careful, as Marston *et al.* (2005) observe, that scale does not come to occlude and displace key concepts like place and space. Instead, there is a need for scale to be understood as one spatial concept among many. It is in identifying its relationship to and interaction with space and place that the 21CG can come to grasp how geographical knowledge is developed differently at difference spatial scales.

Alongside scale, the difference and diversity of the world emerge as central components of geographical knowledge. This is more than recognizing different cultures, societies and ways of life. It is, instead, about understanding how difference and diversity are produced, reproduced and transformed in particular times and spaces. Once more, this returns us to questions of knowledge creation, which acknowledge that there is no objective form of knowing, rather understanding is contoured by life experience, gender, age, sexuality, race and ethnicity (Hanson, 2004; Sheppard, 2004). It is not enough, however, for the 21CG just to recognize and understand difference and diversity. Geography should serve society (Hanson, 2004) and this means that the 21CG needs to be able to work with society's richness. Geography curricula, therefore, need to be able to respond to the experiential nature of knowing, and embed participatory and community-based knowledge acquisition,

in order to develop students' awareness of their own complicity in the creation and transformation of difference and diversity.

Sustainability emerges as another important area of geographical knowledge (Table 1) and is one that reflects quite clearly current concerns over climate change, community resilience and the need to move towards low-carbon economies. Geography is a subject that is often seen as the natural home for learning about sustainability (Chalkley, 2002), but in an era of education for sustainable development, learning about sustainability is not enough (Sterling, 2001; Hopkins & McKeown, 2002). Learning about has to be matched by learning for, as sustainability is as much a form of practice as it is knowledge. It is a form of practice that rests upon the belief that solving real-world problems requires us to build synergies between areas of knowledge previously construed as discrete. This is particularly challenging for higher education systems that are built upon modularization, for this can compartmentalize knowledge and understanding, closing down opportunities for connectivity across different subject areas. Conversely, modular systems may allow students from disciplines other than geography to appreciate the roles that geographical knowledge and skills can contribute to a better understanding of these global issues.

In terms of geography's curricula, sustainability is, perhaps, the greatest force for change, for it suggests that the challenges of the 21st century cannot be met by disciplinary thinking alone. Rather, there needs to be a more integrative approach to knowledge creation, and while Geography is characterized by diversity, we need to ensure that our curricula reflect and explore this. It may well be that geography's own sustainability depends upon the development of curricula that meld geography with other subject areas in the creation of a subject responsive to the needs of the 21st century. Of course, this raises questions over whether we are diluting geography and removing its very essence, or perhaps we are just responding, as geographers have before us, to social and cultural change.

Any attempt to define geographical knowledge is fraught with difficulties. Hence, it is timely for geography curricula to explore the 'situatedness' of geographical knowledge production more explicitly: what it is and what it means in different places (Livingstone, 1992; Rose, 1997). This takes us back to issues of scale and difference, but it also enables the 21CG to think about geography as a network of ideas wherein their own situatedness and attributes affect the nature of their *geographical* understanding. The hope is that this will develop a 21CG who is reflective, thoughtful and attentive to the power of place.

Skills and Attributes

Higher education is increasingly being evaluated in terms of its ability to deliver skill-rich graduates (Solem *et al.*, 2008, 2009). As part of this trend, curricula are expected to help develop transferable skills, such as critical thinking, problem-solving, teamwork and communication abilities. Alongside this, though, curricula are also there to develop subject-specific skills, which in geography can include

- spatial thinking and reasoning;
- representing, in a functional and aesthetically pleasing way, spatial data;
- reading, analysing and interpreting spatial data, or data spatially;
- designing sampling schema that are representative of spatial variability;
- negotiating and working with diverse theoretical perspectives. In human geography this might be, for example, post-structural, postmodern, social construction, complexity theory and hierarchy theory to inform geographical

problem solving. In physical geography, this might be linkages to a wide variety of science and engineering disciplines including risk and hazard assessment.

Perhaps the most obvious geographical skill lies in the discipline's cartographic tradition (Balchin & Coleman, 1966). Cartographic skills have been central to geography's evolution, with the development and integration of GIS only embedding this further. As we move to online mapping, however, there is the need to re-visit cartographic skills within the discipline and ask whether GIS takes it as given that students are competent at handling and interpreting maps as physical objects. GIS is a versatile tool, but the 21CG needs to be spatially literate in multiple ways. They need to be skilled in map-making, interpretation and analysis both within and outside a GIS, for it is their ability to negotiate between and evaluate the 'reliability' of different forms of spatial data that defines them as a geographer and not a GIS technician. A glance at any quality newspaper, magazine or indeed website dealing with spatial representation of data shows where geographic skills are required.

Geographers' uniqueness lies in their geographical imagination (Gregory, 1994). This is the concatenation of spatial experiences they bring to bear on understanding the world, but it is also their ability to understand the world in an inherently spatial way. We are, however, in danger of losing, or at least diluting, our geographical imagination. Bonnett (2003) argues that as geography diversifies and undergoes successive 'turns', it is becoming increasingly insular and westernized. If we are to ensure that our 21CG has a geographical imagination that is global rather than parochial, we need to ensure that their understanding of the world is not just spatial but that it is spatially extensive. Achieving this rests on developing competency in comparative analysis, wherein local process can be connected, contrasted and evaluated against those from other parts of the world. It is only through this that the 21CG will develop a suitably global geographical imagination appropriate to our globalized society.

Nurturing a global geographical imagination also assists in developing the ethical thinking so central to the geographer's art. Hay and Foley (1998) argue for a discipline whose concerns range across such contentious issues as climate change, sustainable development, poverty and inequality, and developing an ethical behaviour that is central to the maintenance of geography's reputation as both natural and social science. Not only does it help reinforce the reliability and validity of what we 'do' and what we 'know', but it attunes us to the particularities of place and to the impact our agency as geographers can have on place. Developing ethical behaviour, however, is far from easy, for it requires curricula to empower rather than instruct students. The 21CG will need to acquire new knowledge and skills and link one to the other. Furthermore, delivery of new curricula should take into account developing pedagogies, not least those attuned to a digital world. We might also suggest that these aspects (knowledge, skills and pedagogies) should be incorporated within or embrace mindsets such as developed by Howard Gardner (2007): Disciplined, Synthesizing, Creating, Respectful and Ethical.

We can argue that geography, in the way it brings together the human and the natural-physical, the social and the environmental, people and place, equips the 21CG with the power of integrative thinking that will allow them to navigate the ethical dilemmas our era of supercomplexity presents. Yet, developing morally responsible citizens is more than this; it is about nurturing engaged, active, independent and humble students. These are students who are able to reflect on their own practices, to understand the influence of these

practices on wider social networks and to recognize the limits of their knowledge and understanding. The challenge, though, is in moving this from the thinking to the doing, the knowing to the practice, and it is here that geography curricula, in the way that they draw on real-world examples, immerse students in the world and emphasize experiential and field-based learning, which can equip students with ethical skills rather than merely ethical knowledge (Popke, 2006). Incorporating the skills and attributes mentioned in rather general terms in this section and linking them to a rapidly expanding geographical knowledge base will not be easy. However, we agree with Arrowsmith *et al.* (2011, pp. 365–377) who suggest that, “a student of geography will develop geographic knowledge along with specific technical skills.” By doing this, the discipline will bring together the qualities that will provide employable and skill-rich graduates that Solem *et al.* (2009) suggest is a requirement for workforce needs and is explicit in the US National Research Council’s publication on research directions for the geographical sciences (National Research Council, 2010).

Producing the 21CG

Previous meditations on the ‘what’ of geography have tended to focus on the substance over process. Sheppard (2004) warns of the dangers of defining geography in terms of a canon: a list of subjects and topics that need to be studied in order to qualify as a true geographer. He argues that geography needs to be *practiced* in a way that facilitates interconnections and engagements across different ways of knowing and doing. Thus, somewhat against the grain, or, perhaps, ahead of the game, Sheppard insists on attending to the discipline’s processes and not just its product: to what we do and not just to what we know.

This brings us to questions of pedagogy, an area not always associated with the curriculum. Yet, if we return to a concept of a curriculum as the relationship between a goal and the methods for achieving this goal, it is right to locate pedagogy in our reflection on curricular change. Geography is a subject area rich in pedagogic innovation (e.g. Kotval, 2003; Healey, 2005; Pawson *et al.*, 2006; Walkington, 2008; Healey *et al.*, 2010), with much of this innovation seeking to develop autonomous learners. However, despite this, it is at the level of pedagogy where inertia is most apparent. As a form of learning the lecture has come in for sustained criticism (Bligh, 1985; Race, 2005), yet it remains a key feature of many geography degree programmes. Institutionally, lectures are a core of provisions and figure largely in student satisfaction surveys and in measuring ‘contact hours’. Conversely, lectures are often seen as a means of concentrating staff input and releasing time for research.

Likewise, the examination remains the pre-eminent form of assessment, despite accusations that such high-stake assessments (Knight, 2006) fail to accommodate complex achievements like imagination, creativity and flexibility. Capstone projects, such as undergraduate dissertations, require students to bring together knowledge creation and synthesis. By doing so, the employment of a variety of skills and problem-solving techniques, as listed previously, can be achieved. Similarly, provision of suitable fieldwork opportunities (from urban and countryside to public record office) offers problem-solving opportunities which link research to teaching (e.g. Healey, 2005).

While geographers are not slow in enriching their own research methodologies (Latham, 2003; Crang, 2005), there is a need, as Saunders (2011) argues, for consistency

across professional practice. Where we adopt innovative research methodologies, we also need to develop our teaching methodologies; the two should go hand-in-hand. Any reflection on the curriculum, therefore, must also be a reflection on our own educational practice. Curricula live through the people who engage with them, no matter how topical or substantive the geographical knowledge is that they contain, this becomes vapour if it cannot be communicated in meaningful, lively and challenging ways.

The corollary to this is the growing split that may be taking place between research and teaching. Spurred on by funding regimes that seek to evaluate universities in terms of their research output and the associated pressures this places on academics to publish, there is a tendency for research output to become ever more esoteric and divorced from its geographical subject matter and inaccessible to a student audience (Gibbs, 2002; Bonnett, 2003; Jenkins and Healey, 2005). If true, this does little to build bridges between academia and the potential academics of tomorrow let alone the majority of 21CGs who hope that a geography degree will help their employability prospects. Moreover, where research is inaccessible to students our curricula may be in danger of stagnating, for in order to make geography understandable, they become ever more distanced and divorced from cutting-edge thinking. As educators, it is incumbent upon us to help students negotiate, explore and engage with geographical research, but if we are to nurture keen and insightful 21CG we need to reframe our students as partners, rather than distractions, to our research (Ramsden, 2008). Obviously, it is difficult to escape funding systems, but small-scale changes can be made which bring research findings, methodologies and methods into engaged undergraduate education at appropriate levels (Healey, 2005; Healey *et al.*, 2010; Moore *et al.*, 2011). Furthermore, complex and demanding activities such as undergraduate projects and dissertations cannot be left to students without previous experiential learning and support (Harrison & Whalley, 2008).

The curricula we produce cannot, in many ways, be disassociated from *where* we produce them (Barnett & Coate, 2005; Savin-Baden, 2008) for, if designed and used imaginatively, space can help nurture student engagement and foster deep learning. Within geography, we often emphasize the spaces and practices of our fieldwork as demonstrative of pedagogically innovative and engaging learning. On the whole, fieldwork is often seen as an enjoyable part of the student experience (May, 1999; Boyle *et al.*, 2007) and a problem-based learning approach (Bradbeer, 1996) is often seen as an important direction for fieldwork studies. Following Barnett and Coate (2005), we should not equate fieldwork with unproblematic learning. Fieldwork can take many forms, from the Cook's Tour approach through experiential activities to e-delivery, but it is not enough to assume that merely being in the field will be engaging. The challenge, as we help develop the 21CG, is how we sustain meaningful engagement during experiential field activities that can be day or week long.

Over the past three decades, higher education has moved from an elitist to a mass-market model (massification), as new student markets are identified (Barnett, 2000). Within the UK, this has taken form through widening participation strategies, which have enriched the social and cultural make-up of the student body. At the same time, our society is becoming evermore dominated by a 'fast-food' culture that demands immediacy, bite-sized knowledge, diversion and constant entertainment (Füredi, 2005). Our fieldwork practices need to respond to these changes, we cannot assume that our student body shares in a uniform cultural or social experience. They have different needs based on ability, ethnicity, faith, gender and age, and we need to design fieldwork in ways that are flexible and responsive. This requires effort, as Saunders (2011) acknowledges, if is not enough to roll

out the same fieldwork, with the same supporting material year-on-year, rather we need to work with, and not just for the student body, to ensure that field learning is inclusive and engaging (Fuller *et al.*, 2004). We have used the word ‘meaningful’ previously. By this, we mean providing student activities which are encompassed by our list under ‘skills and attributes’ and which really do relate to the world, post-degree, whether they are academic or not. Post-degree activities will be in spaces that are quite different from the college lecture theatre, Virtual Learning Environment and formal examination settings.

In response to the globalizing forces and economic pressures facing universities, curricula are having to articulate, ever more strongly, how they develop the skills and employability of their graduates. Although understandings of this debate alter across space (Rooney *et al.*, 2006) in many countries, it is manifest in the development of ‘community curricula’. These are curricula that seek to make explicit connections with the world outside academia, this can be through active, experiential and e-learning, but equally through the growth of service- and work-based learning (Knight & Yorke, 2003). Again though, this is far from easy for it involves thinking about the meaning and nature of geography within higher education.

Facing the requirements of employability, we pose several questions regarding curriculum review:

- Do service- or work-based learning opportunities have to be inherently geographical? If they are not,
- Do students want to undertake them at the expense of a more purely geographical module?
- As geographers are we qualified to lead or evaluate these kinds of modules?
- If we are not, who is?
- Does it require partnership working with careers services and employers? If so,
- How does this impact upon our control of geography curricula?

Making our curricula more outward facing, then, requires us to address what geography is in a globalizing world, and where it can ‘take place’.

As an illustration, we might suggest the importance of digital literacy in geographic education. This is far more than involving GIS and numeracy, important as these are as technical competencies. Digital communication is pre-eminent in the developed world and in developing countries the mobile (cell) phones now provide a major impetus to communication for trade, medical information, etc. that were common elsewhere even ‘pre-mobile’. Mobile learning (Kukulska-Hulme & Traxler, 2005) is now part of the educational scene, as are flexible learning spaces. There are other aspects of and for study by the 21CG where digital technologies are only now starting to venture. Community mapping of local crimes is one that has significance for communities that would not consider themselves to be ‘geographers’. Digital cartography can now venture beyond the academic. Not only geography students can produce high-quality maps with inexpensive software but also creative cartography can extend to studies cities that were difficult even 10 years ago. Solnit’s (2010) study of San Francisco being a good example of extending geographic studies via creativity using digital media.

Conclusions

We began our INLT discussions in a somewhat pessimistic frame of mind. We were beset by a belief that geography was losing some kind of innate ‘geographical’ core. As higher

education entered an era of supercomplexity, wherein economic pressures and globalizing forces were manifesting themselves within curricula through employability, service-learning and transferable skills, we were concerned that geography curricula were losing their geographical distinctiveness. In this we were not alone, for in scanning any one of geography's many journals, meditations of the 'what' of geography abounded. Ours, then, was not a unique angst, but a disciplinary one. Where we differed perhaps was in our explicit focus on the curriculum: on the 'what' of geography as it related to our 21CG.

Identifying the problems, however, was far easier than thinking through the nature and process of curricula change. We were a group of US and UK geographers who worked within different institutional contexts and who came from an array of different geographical traditions: physical and human, quantitative and qualitative, cartographic, humanist and political, to name but a few. While we were of one discipline, our understandings of that discipline, and our approaches to, and comprehension of, curricula were quite different.

Where we came together was in our recognition of geography's social importance, and of the need to create graduates who were equipped with the geographical knowledge and skills to navigate the challenges of the 21st century. Our focus was very much on the student *in* the curricula, rather than the curricula as something external to the student. Consequently, we were motivated by the question of what should a 21CG look like? What knowledge, skills and practices were essential to their geographical identity? Finally, we ask what we as teachers could do to help produce the 21CG? In designing curricula, we need to ensure that they 'live' and by this we mean ensuring that what we do and how we do it relates to student experience, employability and geography's broader social and economic importance by designing curricula that relate to student employment and geography's social importance.

The suggestions, ideas and challenges we raise in this paper are the outcome of a particular social space, and we recognize that our thoughts on curricula change can never be more than suggestions and reflections. There is, though, within this paper a plea for geography departments to continually reflect upon their curricula. Curriculum change is not necessarily something that takes place once every five years, when degrees require revalidation (as in the UK), but is something that should be taking place continually. If we understand curricula not just as the overarching structure in which we deliver learning and teaching, but rather as the relationship between an educational goal and the means for reaching this goal, change does not have to be at a macro-level, it can be at the micro-level of the module or what we actually do in a classroom.

Acknowledgements

We thank other participants of the 2010 INLT Workshop for lively discussion and their contributions to Table 1. In particular, we thank Michael Solem for his part in organizing the workshop and to the referees for making valuable comments to drafts of the paper.

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, pp. 365–377.
- Balchin, W. G. V. & Coleman, A. M. (1966) Graphicacy should be the fourth ace in the pack, *Cartographica, The International Journal for Geographic Information and Geovisualization*, 3, pp. 23–28.
- Barnett, R. (2000) University knowledge in an age of supercomplexity, *Higher Education*, 40, pp. 409–422.

- Barnett, R. & Coate, K. (2005) *Engaging the Curriculum in Higher Education* (Maidenhead: Society for Research into Higher Education and Open University Press).
- Bligh, D. (1985) What's the use of lectures? *Journal of Geography in Higher Education*, 9, pp. 105–106.
- Bonnett, A. (2003) Geography as the world discipline: Connecting popular and academic geographical imaginations, *Area*, 35, pp. 55–63.
- Boyle, A. P., Maguire, S., Martin, A., Milsom, C., Nash, R., Rawlinson, S., Turner, A., Wurthmann, S. & Conchie, S. (2007) Fieldwork is good: The student perception and the affective domain, *Journal of Geography in Higher Education*, 31, pp. 299–317.
- Bradbeer, J. (1996) Problem-based learning and fieldwork, a better method of preparation, *Journal of Geography in Higher Education*, 20, pp. 11–18.
- Chalkley, B. (2002) Setting the sustainability scene, *Planet*, 4, p. 3.
- Cooke, P. (2008) The contested terrain of locality studies, *Tijdschrift voor Economische Sociale Geografie*, 80, pp. 14–29.
- Crang, M. (2005) Qualitative methods: There is nothing outside the text? *Progress in Human Geography*, 29, pp. 225–233.
- Cutter, S., Gollege, R. & Graf, W. L. (2002) The big questions in geography, *Professional Geographer*, 54, pp. 305–317.
- Dorling, D. & Shaw, M. (2002) Geography off the agenda, *Progress in Human Geography*, 26(5), pp. 629–641. Discussion on Curricula Change – Panel B. *Journal of Geography in Higher Education*, this volume.
- Fuller, M., Bradley, A. & Healey, M. (2004) Incorporating disabled students within an inclusive higher education environment, *Disability and Society*, 19, pp. 455–468.
- Firedi, F. (2005) *Where Have all the Intellectuals Gone?* (London: Continuum).
- Gardner, H. (2007) *Five Minds for the Future* (Boston, MA: Harvard Business School Press).
- Giannotti, F. & Pedreschi, D. (2008) *Mobility, Data Mining and Privacy: Geographic Knowledge Discovery* (Berlin: Springer).
- Gibbs, G. (2002) Institutional strategies for linking research and teaching, *Exchange*, 3, pp. 8–11.
- Gibson, C. (2007) Geography in higher education in Australia, *Journal of Geography in Higher Education*, 31, pp. 97–119.
- Golledge, R. (2002) The nature of geographic knowledge, *Annals of the Association of American Geographers*, 92, pp. 1–14.
- Gould, P. R. (1973) The open geographic curriculum, in: R. J. Chorley (Ed.) *Directions in Geography*, pp. 253–284 (London: Methuen).
- Gregory, D. (1994) Social theory and human geography, in: D. Gregory, R. Martin & G. Smith (Eds) *Human Geography: Society, Space and Social Science* (London: Palgrave).
- Hanson, S. (2004) Who are 'we'? An important question for geography's future, *Annals of the Association of American Geographers*, 94, pp. 715–722.
- Harrison, M. E. & Whalley, W. B. (2008) Undertaking a dissertation from start to finish: The process and product, *Journal of Geography in Higher Education*, 32, pp. 401–418.
- Harvey, D. (1974) What kind of geography, for what kind of public policy? *Transactions of the Institute of British Geographers*, 63, pp. 18–24.
- Hay, I. & Foley, P. (1998) Ethics, geography and responsible citizens [I], *Journal of Geography in Higher Education*, 22, pp. 169–183.
- Healey, M. (2005) Linking research and teaching to benefit student learning, *Journal of Geography in Higher Education*, 29, pp. 183–201.
- Healey, M., Pawson, E. & Solem, M. (2010) *Active Learning and Student Engagement* (London: Routledge).
- Hopkins, C. & McKeown, R. (2002) Education for sustainable development: An international perspective, in: D. Tilbury, R. Stevenson, J. Fien & D. Schreuder (Eds) *Education and Sustainability, Responding to the Global Challenge*, pp. 13–25 (Cambridge: IUCN).
- Jenkins, A. (1998) *Curriculum, Design* (Cheltenham: Geography Discipline Network, Cheltenham & Gloucestershire College of Higher Education).
- Jenkins, A. & Healey, M. (2005) *Institutional Strategies to Link Teaching and Research* (York: Higher Education Academy). Available at http://www.heacademy.ac.uk/assets/York/documents/resources/resourcedatabase/id585_institutional_strategies_to_link_teaching_and_research.pdf (accessed 20 December 2010).
- Knight, P. & Yorke, M. (2003) Employability and good learning in higher education, *Teaching in Higher Education*, 8, pp. 3–16.

- Knight, P. (2006) Assessing complex achievements, in: I. McNay (Ed.) *Beyond Mass Higher Education: Building on Experience*, pp. 96–104 (Maidenhead: SRHE/Open University Press).
- Kong, L. (2007) Geography's place in higher education in Singapore, *Journal of Geography in Higher Education*, 31, pp. 39–56.
- Kotval, Z. (2003) Teaching experiential learning in the urban planning curriculum, *Journal of Geography in Higher Education*, 27, pp. 297–308.
- Kukulska-Hulme, A. & Traxler, J. (Eds) (2005) *Mobile Learning: A Handbook for Educators and Trainers* (London: Routledge).
- Latham, A. (2003) Research, performance, and doing human geography: Some reflections on the diary-photograph, diary-interview method, *Environment and Planning A*, 35, pp. 1993–2017.
- Li, X., Kong, Y. & Peng, B. (2007) Development of geography in higher education in China since 1980, *Journal of Geography in Higher Education*, 31, pp. 19–37.
- Livingstone, D. (1992) *The Geographical Tradition* (Oxford: Blackwell).
- Marston, S., Jones, J. P. II & Woodard, K. (2005) Human geography without scale, *Transactions of the Institute of British Geographers NS*, 30, pp. 416–432.
- Martin, R. (2001) Geography and public policy: The case of the missing agenda, *Progress in Human Geography*, 25, pp. 189–210.
- Massey, D. (1991) The Political place of locality studies, *Environment & Planning A*, 23, pp. 267–281.
- Mather, C. (2007) Between the 'local' and the 'global': South African geography after Apartheid, *Journal of Geography in Higher Education*, 31, pp. 143–159.
- May, J. (1999) Developing fieldwork in social and cultural geography: Illustrations from a residential field class in Los Angeles and Las Vegas, *Journal of Geography in Higher Education*, 23, pp. 207–225.
- Moore, N., Fournier, E., Hardwick, S., Healey, M., Maclachlan, J. & Seemann, J. (2011) Mapping the journey towards self-authorship in geography, *Journal of Geography in Higher Education* (in press).
- Murphy, A. (2007) Geography's place in higher education in the United States, *Journal of Geography in Higher Education*, 31, pp. 121–141.
- National Research Council (2010) *Understanding the Changing Planet: Strategic Directions for the Geographical Sciences*. Committee on Strategic Directions for the Geographical Sciences in the Next Decade (Washington, DC: National Academies Press).
- Pawson, E., Fournier, E., Haigh, M., Muniz, O., Trafford, J. & Vajoczki, S. (2006) Problem-based learning in geography: Towards a critical assessment of its purposes, benefits and risks, *Journal of Geography in Higher Education*, 30, pp. 275–289.
- Popke, J. (2006) Geography and ethics: Everyday mediations through care and consumption, *Progress in Human Geography*, 30, pp. 504–512.
- Race, P. (2005) *Making Learning Happen* (London: Sage).
- Ramsden, P. (2008) *The Future of Higher Education: Teaching and the Student Experience*. Available at http://www.dius.gov.uk/higher_education/shape_and_structure/he_debate/teaching_and_student_experience.aspx (accessed December 2010).
- Richardson, D. & Solis, P. (2004) Confronted by insurmountable opportunities: Geography in society at the AAG's Centennial, *The Professional Geographer*, 56, pp. 4–11.
- Rooney, P., Kneale, P., Gambini, B., Kieffer, A., Vandrsek, B. & Gedy, S. (2006) Variations in international understandings of employability for geography, *Journal of Geography in Higher Education*, 30, pp. 133–145.
- Rose, G. (1997) Situating knowledges; positionality, reflexivities and other tactics, *Progress in Human Geography*, 21, pp. 305–320.
- Saunders, A. (2011) Exhibiting the field for learning: Telling New York's stories, *Journal of Geography in Higher Education*, 35(2), pp. 185–197.
- Savin-Baden, M. (2008) *Learning Spaces: Creating Opportunities for Knowledge Creation in Academic Life* (Buckingham/Maidenhead: The Society for Research into Higher Education and Open University Press).
- Sheppard, E. (2004) Practicing geography, *Annals of the Association of American Geographers*, 94, pp. 744–747.
- Skole, D. L. (2004) Geography as a great intellectual melting pot and the preeminent interdisciplinary environmental discipline, *Annals of the Association of American Geographers*, 94, pp. 739–743.
- Solem, M., Cheung, I. & Schlemper, B. (2008) Skills in professional geography: An assessment of workforce needs and expectations, *The Professional Geographer*, 60, pp. 1–18.
- Solem, M., Lee, J. & Schlemper, B. (2009) Departmental climate and student experiences in graduate geography programs, *Research in Higher Education*, 50, pp. 268–292.

- Solnit, R. (2010) *Infinite City: A San Francisco Atlas* (Berkeley, CA: University of California Press).
- Sterling, S. (2001) *Sustainable Education: Re-visioning Learning and Change* (Totnes: Green Books).
- Tapiador, F. J. & Martí-Henneberg, J. (2007) Best of times, worst of times: A tale of two (Spanish) geographies, *Journal of Geography in Higher Education*, 31, pp. 81–96.
- Thrift, N. (2002) The future of geography, *Geoforum*, 33, pp. 291–298.
- Walkington, H. (2008) Geoverse: Piloting a national e-journal of undergraduate research in Geography, *Planet*, 20, pp. 41–46.
- Ward, K. (2005) Geography and public policy: A recent history of 'policy relevance', *Progress in Human Geography*, 29, pp. 310–319.