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**Abstracts and keywords**

**Chapter 1 Walkington, Hill and Dyer**

The first chapter introduces the aims, ethos and threefold structure of the book. We chose transitions as the organising framework for the handbook to acknowledge that student needs at different times in a programme may require different pedagogic approaches. Learners coming into higher education have different needs to those about to graduate. Student identities, learning approaches, capabilities, competencies and preoccupations vary significantly throughout the student journey within higher education, and the handbook focuses on pedagogic approaches that help to support the transitions and stages that students go through. This chapter briefly describes each of the three sections of the book and the chapters within them, highlighting key ideas so that readers can get an overview of the handbook as a whole.

Key words: transitions; inclusivity; pedagogy; student experience

Section 1

**Chapter 2 Tate and Hopkins**

In this chapter we explore the social and academic transitions new geography undergraduates are confronted with at the start of their degree. There has been extensive discussion amongst the geography community about the academic transitions students encounter when beginning to study for a degree in geography. However, our research indicates that there is a symbiotic relationship between these academic transitions and the social transitions students also face at this time. It also suggests that, while the transition to university is one of the ‘critical moments’ in a young person’s life course, it can be more usefully conceptualised as a process of transitioning to, and through, university, rather than as an event. As such, the chapter includes practical and pedagogical ideas for university educators to help students negotiate these academic and social transitions successfully throughout their degree.

Key words: s*tudent transitions; critical moments; academic transition; social transition; student perspectives.*

**Chapter 3 Butt**

This chapter discusses the known ‘gap’ between the curricular content of school and undergraduate geography courses, as well as considering the variation in expected student skills between the two. The text draws on global ‘reviews’ of the state of geography education - including issues of transition from school to university - to provide a comparative perspective across jurisdictions (see Butt and Lambert 2014). The experiences of transition reported by geography students themselves are noted. Previously the ways in which students have negotiated the perceived gap has been largely overlooked, although some work has been completed on self-reflection (Bryson 1997), on developing transferable skills (Haigh and Kilmartin 1999), and on approaches to learning in geography (Maguire et al. 2001).

Although attention is given to the impact of recent education policy shifts in England, which have required university academics to help revise the content of geography ‘A’ (advanced) levels, the approach taken here enables the reader to make comparisons with educational situations in other countries. A small case study is provided, highlighting the convergence and divergence of content and skills in schools and universities in England, noting the recent work of the A Level Content Advisory Board (ALCAB). The provision of a complete global overview of the gaps between school and university geography, and of their potential solutions, in different jurisdictions is impractical. Therefore, the English case study is designed to highlight common issues and to suggest how similar transition problems might be addressed in different national contexts. Implications for the effective transfer of students from school to university geography courses are discussed and perennial concerns about the range of geography content taught to pre-university students are considered.

Key words: *transition; content gap; skills gap; A level; syllabus change; professional development.*

**Chapter 4 Finn and Mott**

Lectures retain a key place in the timetables of many sites of higher education, despite critiques of lectures as unhelpful for learning, detrimental for student engagement and alienating for students and academics alike. In this chapter, we as university geography educators argue that being attentive to the specificities of context can focus our understanding about the challenges and possibilities of large lectures. Through looking to the context of the university, student community, and that of the respective educators themselves, we offer an understanding of the ways teaching and learning are embodied experiences which necessarily develop differently depending the person in question, and the dynamics of place. Rather than characterizing large classes solely through their pitfalls, we consider a range of strategies available to those teaching large lectures, emphasizing the potentials for student engagement that are possible.

Key words: *large lectures; context; dialogue; pedagogies; participation; learning.*

**Chapter 5 Rink**

This chapter reflects on teaching practices within undergraduate geography courses at the University of the Western Cape in Cape Town, South Africa. With learning goals which focus on understanding the complex relationships between people, the natural environment, and the non-human world, and the challenge of limited resources, the undergraduate curriculum requires students to demonstrate their learning through a variety of assessment tasks ranging from tests, essays, reflective journals, tutorial- and practical work. The context of teaching is one comprised of large courses with enrolment of nearly 400 students in the first-year module GES111 *Introduction to Human Geography* and 200 students in the second-year module GES225 *Space, Place and Mobility in Southern Africa.* This chapter demonstrates that assessment for large classes can be based in state-of-the-art teaching practice, and may be applicable in low-resourced environments while also addressing critical learning goals for students. This chapter discusses strategies such as peer evaluation, scaffolding, and both diagnostic and formative assessment using a variety of on-line learning platforms.

Key words: *assessment; e-learning; massification; large class pedagogy*.

**Chapter 6 Fouberg**

Integrating threshold concepts into curriculum will not, in itself, help students into liminal space where they can grapple with troublesome concepts and learn to think in a discipline. Curricula should be designed to create learning spaces where deep learning and integration of concepts can occur. This chapter qualitatively examines survey results and reflective essays of first-year students in an introductory ‘world regional geography’ class in the United States. The author proposes the combination of integrating threshold concepts, establishing a learning space that encourages uncertainty and liminality, and formative feedback and assessment which gives students the conditions to actively engage, build, and refine their schemata.

Key words: *threshold concepts; liminal space; formative assessment; learning space; writing for learning.*

**Chapter 7 Ramdas**

This chapter discusses fieldwork as a transition pedagogy. It builds on my experience a module, Changing Landscapes of Singapore, one of the pillars of general education that students must fulfil before graduation. Through fieldwork students are immersed in an experiential learning environment where they interact first-hand with the landscapes of Singapore they learn about in the module. The purposes of this chapter are two-fold. First, to share strategies for how fieldwork may be deployed as transition pedagogy to promote a spirit of discovery, networking and peer learning, as well as acquire soft skills that students can take with them as they progress to higher level modules and beyond the university; Second, to compare the outcomes of different fieldwork exercises students have had to engage with over the years. In particular I compare lecturer-guided ‘look and see’ fieldwork and self-guided field work using student feedback for the module. The chapter concludes with a summary of the key findings and challenges as well as suggestions for areas of further research.

Keywords: *fieldwork; transition pedagogy; collaborative learning; landscapes; Singapore.*

**Chapter 8 Conradson**

This chapter explores the nature, significance and creation of supportive learning environments for students who are beginning university. It begins by outlining several aspects of the transition to university, before exploring the nature of supportive learning environments in both conceptual and practical terms. Particular attention is given to the significance of welcome, interpersonal recognition, and attunement, which are viewed as elements of a more general relational hospitality. The discussion then moves to consider how supportive learning environments might be fostered within undergraduate geography programmes through the pedagogical practices of residential fieldtrips, group work, and alternative modes of assessment.

Key words: *university transition;**supportive learning environments; welcome; recognition; attunement; relational hospitality.*

**Chapter 9 Griffin**

Few university geography teaching staff are strangers to multi- and interdisciplinary research. While problems such as inconsistencies in language and epistemology present challenges, geographers are well placed to overcome these challenges because of the breadth of perspectives in the discipline and the myriad contexts to which geographical thinking is applied. Increasingly, geographers find themselves operating in a multi- or interdisciplinary context in their teaching as well as in their research. We are, however, perhaps less prepared to meet the challenges this presents. This chapter uses a model developed to describe successful interdisciplinary research collaboration to identify pedagogical implications for teaching university students the skills needed for multi- and interdisciplinary thinking. Further, it identifies a number of practical strategies that teachers can use to support students in developing these skills as well as key challenges associated with teaching in multi- and interdisciplinary contexts.

Keywords: *interdisciplinary teaching; multidisciplinary teaching; collaboration; communication skills.*

**Chapter 10 Dyer**

This chapter discusses the impact that the collaborations between educators have on student learning. In first year units the number and the diversity of such collaborations is often great. They include team taught units, units delivered across geography’s sub-disciplines and with other disciplines, and units taught with Graduate Teaching Assistants (GTAs) and faculty who have recently been appointed. These collaborations are not generally discussed in geography or education literature. This chapter forefronts these education collaborations. It proposes the idea of co-pedagogy as a sensitising concept which calls attention to the impact they have on student learning. The chapter examines different models of teaching together, to highlight their challenges and opportunities.

Keywords: *Team-teaching; co-teaching; Graduate Teaching Assistants; communities of practice.*

**Chapter 11 Healey and Ribchester**

Ethical issues are an example of ‘supercomplexity’, whereby "the very frameworks by which we orientate ourselves to the world are themselves contested" (Barnett, 2000, p.257). Reflecting on ethical issues develops practical, critical thinking skills for dealing with such ‘supercomplexity’, as the frameworks students use to analyse ethical issues may be challenged and are likely to change over time. Yet, despite the wide-ranging potential, teaching ethics is often marginalized and segregated in the geographical curriculum, with ethics frequently being limited to prescriptive research considerations. This chapter offers a holistic approach to how ethical thinking might be embedded within geography programmes through a set of key principles related to: 1) recognizing; 2) reviewing; and 3) responding to ethical issues. This framework enables tutors to work with students to address ethical thinking and problems both inside and outside the curriculum, as well as to prepare students for their futures, including in the graduate-level workplace. It is suggested that encouraging students to reflect on ‘everyday’ ethical problems may sometimes act as a helpful first step prior to addressing ethical challenges within the content and practice of the discipline.

Keywords: *Ethics; teaching ethics; ethical thinking; reflection; holistic approach; geography*.

**Chapter 12 Waller, Miller and Schultz**

Information literacy encapsulates the varied skills or behaviours required to make effective use of information resources. There is a growing recognition of the need for learners to develop these skills in an information age characterised by a proliferation of information of uncertain quality and reliability. From the perspective of learning and teaching in Geography, information literacy skills allow students to work more independently, to engage with the research “cutting edge”, to appreciate the plural and contested nature of the subject, and to place their own work within its broader academic context. Whilst recent technological developments have been beneficial, the limited development of information literacy skills within secondary education can pose significant problems for learners making the transition into higher education. This chapter considers the key conceptual frameworks, the challenges faced by students, and the practical strategies than can help students to engage effectively within academic research literature.

Key words: *information literacy; independent learning; staff-library collaboration.*

Section 2

**Chapter 13 Hughes and McDuff**

Recognising that the awareness of differential outcomes among academics varies dramatically within and between institutions, we argue that addressing differential student outcomes is a key challenge for Higher Education. The causes of long-standing differences in students’ attainment are clearly multi-dimensional and complex (HEFCE, 2015). However, habitually teaching staff rely on a model of student-deficit to ‘explain away’ these gaps, arguing that students from particular backgrounds do not have the appropriate facility to do well in Higher Education. However, students’ report that factors such as the user-friendliness of their curricula, and the extent to which they feel supported and encouraged in their daily interactions, also play an important part (Mountford-Zimdars et. al, 2015). This chapter argues that to ensure an equality of opportunity for all students in Higher Education, teaching staff in academic disciplines like Geography must reflect more robustly on the inclusiveness of their own curriculum and the (unwritten) assumptions they bring to their teaching and learning practice (Hughes, 2016). We argue that an ‘inclusive’ curriculum is crucial in ensuring that all students are connected to their learning and therefore more likely to succeed. In this chapter, we apply an Inclusive Curriculum Framework (McDuff and Hughes, 2015), which identified three principles of inclusivity, to a case-study of rural geography teaching and provide some evidence of its efficacy.

Keywords: *inclusivity; inclusive curriculum; rural geography; attainment gap; equality*

**Chapter 14 Walkington**

This chapter describes a ‘students as researchers’ pedagogy outlining teaching practices, the contexts in which it can be adopted, and levels of student engagement that can be achieved in terms of participation and ownership of the research process. Disseminating results is an integral part of the research process in which students should be involved. The chapter provides empirical data contrasting the student learning gains from writing for a national undergraduate research journal, GEOverse, with presenting and participating at student research conferences. This is the first time that the two research dissemination formats have been compared empirically. The chapter provides suggestions for linking and scaffolding research experiences and dissemination opportunities through a programme level approach. The chapter closes with a discussion of the academic staff (faculty) role in the supervision and mentoring of student research and begins to explore the characteristics of effective research mentors.

Key words: *pedagogy; research-based learning; student engagement; undergraduate research; high impact practices; mentoring.*

**Chapter 15 Hodgkins, Bullard**

A joke (of sorts) between environmental change academics appears on social media every handful of years, when the Intergovernmental Panel on Climate Change (IPCC) releases a new assessment report: now we have to update our lecture slides. This speaks to the important need to keep our curricula and content current, but also falls into the familiar trap of regarding teaching as a unidirectional knowledge transfer. In fast-changing fields, as in a fast-changing society, the ability to update knowledge and understanding is a key skill that students need to develop at least as much as academics. This chapter discusses how students can be co-producers of up-to-date content, rather than recipients of content mediated by a lecturer, through enabling them to evaluate accessible sources such as online commentaries and explainers as pathways into the specialist literature. This is a key skill of particular importance in geography, which, as an integrating subject, draws its strength from rendering specialist material relevant and accessible to wider fields and audiences. An assessment-based case-study is presented, in which students examine and present an account of a contemporary issue at the interface of environmental change and societal impact, from perspectives of escalating specialism and detail.

Key words: *co-production; explainers; commentaries; synthesis; aligned assessment; active learning.*

**Chapter 16 Klein, Barton, Salo, Lee and Vowles**

Part of becoming a geographer is learning the discipline’s conceptual framework. This chapter illustrates several inquiry-based activities designed to help geography majors develop understanding of essential disciplinary concepts and perspectives. The methods employ varieties of a structured, issues-based inquiry pedagogy, in which short in-class activities present essential concepts through analysis and interpretation of diverse forms of geographic data. As supplements to lectures, such brief inquiry activities can help students make connections among geographic concepts and foster development of a geographical perspective. Examples from a mid-sized, public university in the USA illustrate the diversity of attainable issues-based approaches within introductory and advanced geography courses. Designing effective inquiry activities necessitates situating them within the local geographic context (cultures, politics, environments, and economics) of the university and its students. Informal responses from students indicate consistent approval of these types of activities as memorable and effective parts of the courses. Brief inquiry activities help make geographic conceptual structures relatable for students, connecting them to their own local experiences as well as to their future professional development.

Keywords: *Inquiry-based learning; active learning; threshold concepts; local scale; critical GIS; community-engaged learning*

**Chapter 17 Esson and Last**

This chapter demonstrates how learning and teaching about race can both further understanding about racial inequality within geography, and improve disciplinary knowledge about the history and spatiality of racism as it intersects with wider structural inequalities. Through doing so, the chapter contributes to longstanding and more recent debates over how geography curricula are shaped by and perpetuate subjectivities, epistemologies and practices underpinned by racist logic. We illustrate how insights from decolonial approaches, and Critical Race Theory (CRT) perspectives, can support geographers in creating degree programs that address and counteract the perpetuation of ‘white geographies’ i.e. the racist and colonial assumptions that are normalised and circulated through our institutional arrangements and practices. We conclude by calling on geographers to embrace a ‘curriculum against domination’, which rejects learning, teaching and knowledge production that perpetuates hierarchies of superiority and inferiority.

Key words: *critical race theory; curriculum; decolonial; diversity; pedagogy; race and racism*

**Chapter 18 Maddrell and Wigley**

Geographies of death has become an increasingly visible within Emotional, Urban, Rural and Political Geography sub-disciplines, exploring the spatialities, practices, politics and policies around death and memorialisation, embracing issues of morbidity, mortality, extinction, gender, identity, culture, religion, ethnicity and the environment, to name but a few. Teaching geographies of death can be a challenging task as alongside the academic value of the topic, there must also be consideration of the associated personal reflections and experiences relating the subject matter for both students and teaching staff. This chapter draws on the reflections and experiences of staff and students in designing and delivering a new third year undergraduate module *Geographies of Death,* the first of its kind within the UK. The authors recommend a wide range of pedagogical approaches and modes of teaching including craft activities, café style discussions, cemetery fieldtrips and traditional lecture and seminar components. Additionally, this chapter contributes to debates around teaching challenging material, arguing that whilst the emotional aspects of the module should be approached with some care and consideration for emotional-affective sensitivities, educators should not try and remove emotion from the content altogether. Indeed, the emotional-affective dimension to such material can illustrate the significance of the topic and make for effective engagement and therefore effective teaching.

Key words: *Deathscapes; emotional geographies; course design; student centred learning; reflective learning; difficult topics*

**Chapter 19 Robinson**

This chapter explores the ways in which we as geography educators have a responsibility to think about the wider impact on society of what we teach and how we teach it, ensuring our students are equipped to become knowledgeable and engaged actors within sustainability debates, with the skills to educate and influence others, and the agency to enact change. This responsibility includes reflecting on the ways we engage with sustainability in our teaching, the use of active and experiential pedagogies, and the provision of opportunities and support for students to practically explore sustainability without fear of failure. We also have a responsibility for the subject to ensure that any division between human and physical geography does not preclude geography from an important role in the growing interdisciplinary arenas of sustainability education and research.

Keywords: *Education for Sustainable Development; responsibility; sustainability; interdisciplinarity*

**Chapter 20 Parton and Haigh**

Parton and Haigh consider the question: ‘what does internationalisation of the curriculum really mean for my teaching?’ It explores two contrasting curricula that explore ways adapting a Geographical curriculum to develop, simultaneously, both key geographical concepts and, through internationalisation of the curriculum, ‘graduate attributes’, such as global citizenship. The first case study uses geographical content as a vehicle to explore global, international and intercultural concepts and to develop awareness of Western mind-sets. The second adapts non-Western, Asian - ‘dharmic’, pedagogies and methods to explore subjects of Geographical concern, from a perspective that places the learner’s ‘self’ centre stage. Geographical education for global citizenship is presented as both a process for constructing transformative moral cosmopolitanism and means for creating more ethically-aware, more conative and more affective learning.

Keywords: *internationalisation; global citizenship; graduate attributes; intercultural learning*

**Chapter 21 DeMers**

As Geographic Information Systems (GIS) and Science have evolved from programming and development to include application and modelling, design and institutional implementation, and the theory of geographic information, the need for specialized, career-specific instruction has consequently increased and diversified. The traditional college or university approach of formal GIS instruction is proving outmoded and insufficient to satisfy the needs of a widening set of learners in need of specific, sometimes current awareness and sometimes remedial learning. The audience can be learners in high school, community college, undergraduate or graduate school, pre-service or in-service professionals, or even those new to the profession. Recent advances in both technology and applications of GIS indicates the need for three major interacting ingredients to provide such a multi-path entry into GIS: Online Learning and Personal Learning Environments (PLE) combined with conditions of Heutagogy. This chapter describes how this approach might be achieved with existing technology and approaches. [148 words]

Key words: *heutagogy; personal learning environments, multi-path GIS education*

**Chapter 22 Fuller and France**

Geography fieldwork has been described as the signature pedagogy of the discipline, but field-based pedagogies must be founded on best-practice and contribute positively to learner development if fieldwork is to continue to provide an effective and powerful learning experience at the heart of the subject. Fieldwork provides a range of opportunities to deploy strategies that develop students as independent learners, preparing them for the world of work. In particular, fieldwork provides opportunities for students to develop independence from their lecturers and take responsibility for their own learning. We discuss a range of field-based approaches in a variety of settings, covering introductory to final year undergraduate levels in this chapter, with a view to developing learner independence and encouraging students to take ownership of their work. We use two foci towards developing learner independence: the adoption of digital technologies in fieldwork; and the use of research in field teaching and suggest that both foster a range of key skills at a variety of levels and in a range of contexts, cultivating independent learning.

Keywords: *Fieldwork; independent learning; digital technology; BYOD; signature pedagogy.*

Section 3

**Chapter 23 Pawson and Poskitt**

This chapter focuses on the theme of ‘taking ownership’; that is, the assumption of responsibility for one’s own learning. As a process it demands significant commitment, but has the potential to reap many benefits in terms of motivation and student engagement, which in turn may lead to greater understanding and enhanced learning. We develop the argument in four parts, starting by exploring the subversion of traditional hierarchical structures, drawing out the distinction between teaching and learning, constructivism and the creation of knowledge. Second, we examine the implications of taking ownership for the student as subject, for the lecturer as tutor and mentor, and for the construction and use of learning spaces. Third, we illustrate the discussion with three case studies to encourage those who wish to develop their own classroom practices: problem-based learning; undergraduate research; and living laboratories. We conclude by drawing the threads together to show how taking ownership enables lifelong learning and encourages the elastic and creative thinking skills required for navigating the challenges of the Anthropocene. The theme also has implications for authorship, and we discuss these implications as a combined student/staff writing team.

Keywords: *taking ownership, learning, constructivism, engagement, Anthropocene, authorship*

**Chapter 24 Moore-Cherry**

In the last decade, as the higher educational landscape has shifted, ‘partnership working’ has become an aspirational goal for institutions, policymakers, educators and student representative bodies. Partnerships can vary in nature and scale, including academic staff, students and professional staff in a variety of combinations. An ethos and culture of partnership in higher education impacts positively on student engagement by supporting the development of an enhanced student identity and sense of institutional belonging. This chapter focuses on pedagogical partnerships and their role in supporting the student journey towards self-authorship. In particular, it showcases partnership working in geography higher education and reflects on how this might be progressed and become a more mainstream pedagogy in 21st century geography programmes.

Keywords:*identity, partnership, self-authorship, student engagement, geography higher education*

**Chapter 25 Brail and Whalen**

This chapter highlights the value of experiential learning in undergraduate education and focuses on the potential for multi-faceted learning for senior undergraduate students. The chapter begins by introducing experiential learning opportunities connected to curricular learning as an important means through which to provide students with a set of skills and a knowledge base to become knowledgeable geographers, engaged learners and active citizens. A literature review highlights both pedagogical theory and best practice case studies, helping to inform and advise on the meaning and value of the synergistic relationship developed by connecting classroom learning to experiential learning. We then explore three types of academic courses that connect learning inside and outside the classroom as follows: 1) placement courses, 2) studio courses and 3) field study courses. Through an examination of these different yet complementary approaches to experiential learning, we highlight ways in which course and assignment design – combined with various approaches to experiential learning – enrich and extend student learning beyond the classroom. The chapter concludes with suggestions and recommendations for embedding discipline-based content into experiential, outside the classroom initiatives targeted to undergraduate learners in the final years of their programs of study.

Keywords: *Internship, community placement, studio, field trip, experiential learning, community engaged learning*

**Chapter 26 Mol, Horswell and Clarke**

Field-based disciplines like geography have long used time in the field as an educational tool. Usually, this experience concerns using the field location as a locus for teaching and practicing technical skills and for improving group identity in support of better learning outcomes. This work can take the form of 1) students working independently in a field location, 2) students working alongside staff, and 3) students following a staff-led itinerary in a larger group, including geographic expeditions. All three forms of fieldwork carry with them unique benefits for pedagogy and academic, personal and professional development, but also risks relating to physical safety and mental wellbeing which need to be managed carefully. This is particularly important if students are working in difficult circumstances, such as areas of high poverty, poor access to health care and absence of easily-navigable infrastructure. In this chapter, we explore the benefits and potential issues associated with all three forms of student field work, and draw comparisons across them in order to evaluate the role of field work in the curriculum. This focusses on tangible achievements such as technical skills and successful group labour division and management, as well as intangible achievements such as the empowerment these students feel through having overcome practical challenges themselves and taking ownership of field-based tasks.

Keywords: *Fieldwork, employability, overseas, skills development, collaboration*

**Chapter 27** **Hill and Worth**

This chapter guides readers to develop assessment and feedback practices that support geography undergraduate students to behave as reflective practitioners, developing skills for life-long learning. The chapter begins by outlining why approaches to assessment and feedback in higher education should be reconsidered. Key theories and concepts are introduced that encourage readers to think of assessment as part of learning rather than a summative conclusion about performance. Concepts examined are authenticity, liminality, dialogue, learner responsibility, self-regulation and self-efficacy. Two case studies are presented to exemplify a social constructivist approach to assessment, where students find assessment meaningful and ‘real’. Authentic assessment positively enhances the learning experience, improves performance and develops employability skills, supporting the transition into professional life. The first case study shares formative and summative assessments that involve students contributing to contemporary debates about the geographies of citizenship. The second case study explores student perceptionsof dialogic feedforward and charts the resulting impact on student behaviour, achievement and transferable skills. The chapter highlights the challenges inherent in such approaches and how they might be mitigated, and concludes with wider recommendations for practice.

Keywords: *Authentic assessment, dialogue, feedforward, self-reflection, self-regulation, employability*

**Chapter 28 Hovorka and Wolf**

A capstone is the culmination of an undergraduate program. For geography students, a culminating experience offers an opportunity to ‘pull it all together’ and consider geographical knowledge, skills and values as a whole. As such, it facilitates mastery of disciplinary tenets. It also offers students an opportunity to integrate and critically assess their undergraduate experiences, make sense and meaning of those experiences, and look forward to building upon them for the future. The aim of this chapter is to offer a range of ideas and approaches regarding capstones in geography that challenge students to demonstrate mastery, as well as synthesize and reflect on their learning, particularly as applicable for the wider world. The chapter begins with the broader context of capstones in geography by highlighting what they seek to do and the common formats and approaches taken, namely residential field courses, independent research projects, and courses featuring historical disciplinary overviews. The chapter continues by emphasizing that capstones in geography can be conceived of and delivered in various and innovative ways. To this end, it details capstones focused on re-conceptualizing the field, re-framing the dissertation, and re-imagining disciplinary contributions to enhance the meaning and relevance of culminating experiences for students and to address broader geography program learning outcomes.

Key Words:*Capstones, geography, innovation, learning outcomes, mastery, reflection, synthesis, undergraduate education*

**Chapter 29 Shepherd**

This chapter explores the interplay between the world of learning and the world of work. It reviews a variety of classroom and external activities that are designed to provide geography students with opportunities to become aware of, and prepared for, employment after graduation. The variety of student learning activities reported in the literature are organised as a set of levels, ranging from those with the lowest degrees of student engagement with work activities and workplaces at one end, to levels with the highest degrees of engagement at the other. The chapter critically examines recent and current practices and highlights unresolved issues and challenges.

Keywords: *Learning for work, work-related learning, geography*

**Chapter 30 Arrowsmith and Cartwright**

This contribution is written from the perspective of teaching in an institution that historically has a focus on the development of curricula that accord to, and are in concert with, the needs of industry. The Royal Melbourne Institute of Technology (RMIT University) values its close links with industry and encourages active participation of industry in program development and review. It also promotes engagement between academics and students with industry in solving real-world problems. With this background of university-industry co-operation, curriculum design has always considered embedding employability skills in teaching. In this chapter we review undergraduate programs in geospatial science and surveying, as well as postgraduate coursework master’s and doctoral programs taught at a large technical university. With a well-defined domestic profession in surveying and geospatial sciences, and the requirement to address the vocational needs of international students, the university has always maintained close links with the professions, and the industry into which students may ultimately enter upon graduation. We begin by reviewing the employability skills required by the geospatial sciences industry. This is followed by an overview of the requirements and accreditation standards specified by national and international professional organisations and accreditation boards and authorities. Finally, selected case studies are outlined, which are considered to be exemplars of good university-industry engagement.

Keywords: *Industry engagement, employability skills, geospatial sciences, accreditation, curriculum development*

**Chapter 31 Solem, Huynh and Kerski**

Educating geography students about career opportunities is in many ways a unique challenge. It is rather uncommon for an employer to advertise an opening for a ‘geographer’ per se, even in cases where a job entails applications of geographic knowledge, skills, and technologies. At the same time, many other employers are simply unfamiliar with what a person with a geography degree knows and is able to do. While this may at first glance seem to put geography students at a disadvantage, the good news is that the professional possibilities awaiting them are bountiful and extensive, and very likely to remain so well into the future. Our responsibility as educators and advisers in this context is to engage students in a process of thinking about the significance and potential of their academic preparation in geography and what it means to be and become a professional geographer. In this chapter, we present a variety of strategies and curriculum resources developed in recent years to teach geography students about issues of professional ethics, career planning, networking strategies, work-life balance, lifelong learning, and relationships between theory and applied practice in geography. The pedagogical approach we advocate goes beyond the technical ‘nuts-and-bolts’ of helping students write cover letters, format resumes, design portfolios, and improve their interviewing skills. We highlight ways of preparing students to think analytically about the broader industry trends shaping the future economy, and how their disciplinary expertise connects to the evolving needs of business, government, and non-profit employer organizations. From this approach, students stand to gain valuable research skills and a newfound appreciation of the broader value of geography in a wide array of professional settings.

Keywords: *Professional development, applied geography, competencies, capabilities*

**Chapter 32 Spronken-Smith**

This chapter concerns the what, why and how of graduate attributes in geography higher education. The chapter begins with an introduction that provides definitions of graduate attributes, and considers capabilities, as well as discipline-specific versus generic graduate attributes. The introduction also provides a rationale for why we should consider graduate attributes when designing courses and curricula, moving beyond compliance to sound pedagogical design. The next section discusses graduate attributes for geographers in terms of discipline-specific knowledge and skills, and transferable skills. It also points to the need for consultation with stakeholders (students, staff and employers) to determine contextually-relevant transferable skills (e.g. in New Zealand the need for strong understanding of bicultural issues). The third section discusses how to design geography curricula to foster graduate attributes, covering aspects such as an outcomes-based approach to curriculum design, and teaching and learning activities and assessment tasks that help foster graduate attributes. The final section covers monitoring of the attainment of graduate attributes so that programme coordinators can be assured their students are indeed attaining the desired set of graduate attributes.

Keywords: *Graduate outcomes, graduate attributes, toolkit, curriculum change, geography*

**Chapter 33 Kneale**

There is a tension in the UK between providing students with the skills to be effective researchers in geography and promoting the skills which are sought after by employers. In undergraduate teaching the promotion of active learning, problem-based learning, enquiry-based learning, and expedition and fieldwork pedagogies are likely to involve group-based project work. These pedagogies develop skills of networking, discussion and group writing that have currency in many early stages of employment. The group approaches in early years are then in tension with a final year ethos of students demonstrating what they can do alone, through individual research projects, the dissertation and assignments. There is an argument that students find this change in ethos confusing and it disrupts their developmental preparation to be effective, team-based researchers in workplace or academic settings. This chapter explores some of the tensions in final year programme design and considers the argument for increasing group-based research challenges in the final undergraduate year. It is argued that challenging team-based projects, extending over a semester, offer appropriate development, demonstrate progression, enable deeper thinking, embed research and reporting skills through serious practical experience, and enable exploration and research into contemporary issues in geography that are relevant, exciting, and motivating. Such an approach reinforces the value of the research-teaching nexus and should enable groups of undergraduates to engage more actively in research areas which may otherwise be privileged to higher degree and research students.

Keywords: *Curriculum design, student researchers, teamwork, professionalism, progression, wicked projects*

**Chapter 34 Hill, Walkington and Dyer**

The final chapter draws on the contributions to our edited collection to identify four principles that together build a solid foundation for successful teaching, learning and assessment of geography in higher education. These principles are: 1) entering the pedagogic borderlands; 2) embracing partnership working; 3) acknowledging the whole student; and 4) adopting courageous pedagogy. The nature and meaning of each of these principles is outlined, along with their affordances and challenges. The chapter demonstrates that entering the pedagogic borderlands and working in partnership to legitimate emotions as part of holistic and meaningful academic exploration can help reveal to students our disciplinary ways of knowing the world. Being courageous in our pedagogy, taking calculated risks, and working creatively within time constraints and workload pressures, we can ultimately establish more meaningful connections and deeper ways of knowing in our classrooms, over our campuses, in local communities and across the world. Consulting the mass of knowledge presented in this collection, we hope that colleagues will feel more supported in working with students to develop the geocapabilities for responsible global citizenship, both now and into the future.

Keywords: *Borderland space, partnership, geocapabilities, wellbeing, courageous pedagogy*