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# 1. Introduction to the *Handbook for Teaching and Learning in Geography*

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## THE AIM OF THIS HANDBOOK

This handbook is an original reference work designed to provide a broad overview of knowledge on the teaching of geography in higher education and its practical application. The chapters present expert scholarly analysis from a wide range of teaching contexts internationally and offer a vital reference point for further research that can inform and enhance practice. Our aim was to present a mixture of chapters based on new synthesis of published work, evidence-based practice and personal reflections, providing an overview and insight into the extensive range of issues relating to teaching geography in contemporary higher education. Taken as a whole, this volume conveys a wide-ranging picture of the current state of knowledge in the field of higher education pedagogy in the discipline, although, of course, it is not exhaustive. This chapter briefly outlines the values that underpin the handbook and its structure, then provides a flavour of each chapter in turn, so the reader has a sense of the breadth of coverage, before delving further into the specifics. In our final chapter we draw out salient themes from the handbook as a whole, in a synthesis that speaks to current educational thinking and debates.

The handbook is written for people teaching geography in a higher education setting as well as those supporting them. Chapters are written in an accessible manner so that early career geographers and those who are new to teaching can easily engage with the material. Equally, contributions cater for colleagues who are mid-career as well as those with very significant experience by offering new ways of thinking about issues and providing insights and ideas for developing educational practice. Academic staff developers, as well as others who support teaching and learning, including library and careers staff, and those with responsibility for curriculum and programme development, will also benefit immensely from reading the handbook. The authors and our intended audience are international so nation-specific terminology is clearly explained.

### **Ethos**

The chapters of the handbook have been written with a diverse student body in mind, and ideas about inclusivity are embedded throughout, as well as recognition that internationalisation of the student body, through greater student mobility, requires ongoing curriculum internationalisation. There is also recognition that resource constraints are part and parcel of many university and college contexts, despite more people accessing higher education. Partially in response to this, but also as a result of ongoing innovations, the utility of technology for reaching larger numbers of students also permeates the book. Student engagement is central to all chapters and a wide range of learning contexts

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relevant to the breadth of spaces and places in which geography teaching takes place are used to provide examples of how this can be enhanced. In addition, case study sections provide context from a range of sub-disciplinary approaches. The authors and editors of this handbook have given their time to developing chapters aimed at sharing good practice, based on the belief that reading about each other's practice is an important step in reflecting on one's own teaching and approaches to supporting student learning.

This handbook is important because it provides a comprehensive evidence base through a mix of literature and empirical data, as well as reflections on practitioners' own teaching practice, supported with authentic case studies and exemplars. All the submissions represent 'original' research, either in terms of a new synthesis of the literature and ideas, or inclusion of the authors' own empirical findings relating to geography higher education pedagogy (of course many do both). Individual chapters present expert scholarly analysis and offer a vital reference point for further research that can inform and enhance practice. Taken as a whole, the handbook conveys a wide-ranging picture of the current state of knowledge in the field of teaching and learning in geography in higher education. We hope that it will provide an invaluable and innovative tool for academic geographers globally.

### **Structure**

The structure of the book is threefold. Part I explores the pedagogies to ease the transition into higher education geography. Topics in this section include fieldwork and group work as transition pedagogies, student engagement and active learning in large classes, and threshold concepts in the discipline. Part II discusses pedagogies for independent learning and how to inspire 'thinking as a geographer' as well as ensuring all learners are included. We cover a range of approaches which encourage students to make the transition to more autonomous, participatory and self-directed learning, including through fieldwork and the use of specialist technology. Part III focuses on future-oriented pedagogies to develop self-efficacy and self-authorship. It features partnership learning, experiential learning, innovative capstone projects, work-based and service learning, developing graduate attributes and preparing for careers.

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 are not the same as those about to graduate. Student identities, learning approaches, capabilities, competencies and preoccupations vary significantly throughout the student journey within higher education, and our pedagogic approaches can help to support the transitions that students go through.

Each chapter extends what has previously been published on the topic. Some chapters do this by providing a theoretical rationale or literature review as context to the author's empirical research or pre-existing case studies, to provide an evidence base for what works. All the chapters include some references or links to further resources at the end, which will be useful for readers who wish to follow up the material in the chapter. Each chapter concludes with key messages for the reader about the implications for their educational practice.

## PART I: PEDAGOGIES TO SUPPORT TRANSITION INTO HIGHER EDUCATION

In Part I we examine the support that students need to make a successful transition to higher education. Chapters examine themes that will be familiar to those who teach students during their transition to university. One of these themes is the importance of acknowledging ‘the whole person’ who is becoming a student; someone who is experiencing social and identity, as well as academic, transitions. Authors explore how this acknowledgement should inform the ways we design learning experiences and teach. Another theme in this section is the role of transition teaching in preparing students to be successful throughout their degrees. This requires students to have the appropriate skills and approaches to learning. It requires that they be willing to engage meaningfully with geography, challenging their existing understanding of the world and their place in it. The final couple of themes examine the contexts in which transition teaching often takes place. First, a number of our authors explore effective teaching of ‘large cohorts’, examining lecturing, assessing, and fieldwork. Extending these discussions the final theme examines how contexts such as teaching by teams and in multi- and interdisciplinary departments can be done well. Taken together these chapters extend our understanding of geography education during transition to higher education. They offer geography educators approaches to improve their own practice.

Part I begins with Chapter 2, in which **Simon Tate** and **Peter Hopkins** explore the social and academic transitions new geography undergraduates are confronted with as they start their degrees. Their chapter extends discussion about the academic transitions students encounter, using research which indicates a symbiotic relationship between these academic and social transitions that students face. Their research also suggests that, while the transition to university is one of the ‘critical moments’ in a young person’s life course, university can be more usefully conceptualised as a process of transitioning to, and through, university, rather than as a distinct event. They include practical and pedagogical ideas for university educators to help students negotiate these academic and social transitions successfully throughout their degree.

In Chapter 3 **Graham Butt** discusses the known ‘gap’ between the expected skills and curricular content of school and undergraduate geography courses. He draws on reviews of geography education globally to provide a comparative perspective across jurisdictions (see Butt and Lambert, 2014). He provides a case study of the impact of recent education policy shifts in England, which have required university academics to help revise the content of geography ‘A’ (advanced) levels. It highlights the convergence and divergence of content and skills in schools and universities. The English case study is designed to highlight common issues and to suggest how similar transition problems might be addressed in different national contexts. His approach enables the reader to make comparisons with educational situations in other countries. He discusses the implications for the effective transfer of students from school to university geography courses and perennial concerns about the range of geography content taught to pre-university students are considered.

In Chapter 4 **Matt Finn** and **Carrie Mott** focus on the demands of lecturing to large groups. Lectures retain a key place in the timetables of many sites of higher education, despite common critiques of lectures as unhelpful for learning, detrimental for student engagement and alienating for students and academics alike. Finn and Mott argue that

being attentive to the specificities of context can focus our understanding about the challenges and possibilities of large lectures. Through looking at the context of the university, student community, and that of the respective educators themselves, they offer an understanding of the ways teaching and learning are embodied experiences which necessarily develop differently depending on the person in question, and the dynamics of place. Rather than characterising large classes solely through their pitfalls, they consider a range of strategies available to those teaching large lectures, emphasising the potentials for student engagement that are possible.

In Chapter 5 **Bradley Rink** turns our attention to assessment in the context of large groups. He 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. In this chapter he demonstrates that assessment for large classes can be based on best practice and be applicable in low-resourced environments in order to support 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.

**Erin H. Fouberg** writes about the importance of curriculum design in Chapter 6. She explores the importance of ‘threshold concepts’, arguing that integrating threshold concepts into the curriculum will not, in itself, help students into liminal space which enables them to 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. Fouberg 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.

Chapter 7 sees **Kamalini Ramdas** discuss fieldwork as a transition pedagogy. It builds on her experience of a module, ‘Changing Landscapes of Singapore’, in which students are immersed in an experiential learning environment through fieldwork. The purposes of this chapter are two-fold. First, it shares strategies for how fieldwork can be used as a 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, the chapter compares the outcomes of different models of fieldwork employed over the years in iterations of the module. In particular Ramdas compares lecturer-guided ‘look and see’ fieldwork and self-guided field work using student feedback from the module.

In Chapter 8 **David Conradson** explores the nature, significance and creation of supportive learning environments for students who are beginning university. The chapter 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.

**Amy L. Griffin** discusses the challenges of teaching in a multidisciplinary context in Chapter 9. She argues that 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. She explores the increasing phenomenon of geographers finding themselves operating in a multi- or interdisciplinary context in their teaching as well as in their research. 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.

In Chapter 10 **Sarah Dyer** discusses teaching as part of a team. She 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. In this chapter Dyer forefronts these education collaborations and 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 affordances.

In Chapter 11 **Ruth L. Healey** and **Chris Ribchester** argue that teaching ethics needs to begin early in undergraduate degrees. 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 marginalised 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 recognising, reviewing and 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. Healey and Ribchester suggest 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.

In the final chapter in this part, Chapter 12, **Richard Waller**, **Gill Miller** and **David M. Schultz** discuss the importance of information literacy in students' transition. Information literacy encapsulates the varied skills or behaviours required to make effective use of

information resources. 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 that can help students to engage effectively within academic research literature.

## PART II: PEDAGOGIES TO FACILITATE MORE AUTONOMOUS LEARNING

In Part II we focus on pedagogies to facilitate students becoming more autonomous learners, that is pedagogies for independent learning and thinking as a geographer. Topics in this section include pedagogies for research-based learning, for values education, for broadening participation and the range of approaches which encourage students to make the transition to more autonomous, participatory and self-directed learning, including through fieldwork and the use of specialist technology. The chapters in Part II also focus on embedded aspects of the geography curriculum such as sustainability and internationalisation, which are not specific to our discipline, as many disciplines try to make their curricula more imbued with sustainability literacy, and more international, but the important work of doing this through the discipline of geography is critically engaged with and exemplified by experts in these fields.

In Chapter 13 **Annie Hughes** and **Nona McDuff** focus on inclusivity in the curriculum. They take as their starting point differential student outcomes, a major challenge for higher education. They acknowledge that the causes of long-standing differences in students’ attainment are clearly multi-dimensional and complex (HEFCE, 2015) but critique the pervasive model of student-deficit to ‘explain away’ these gaps, where students from particular backgrounds are perceived not to have the appropriate facility to do well in higher education. Using student data they report that factors such as the user-friendliness of curricula, and the extent to which students 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). The authors argue that an ‘inclusive’ curriculum is crucial in ensuring that all students are connected to their learning and therefore more likely to succeed. In their chapter these authors apply an ‘Inclusive Curriculum Framework’ based upon three principles of inclusivity, to a case study of rural geography teaching and provide evidence of its efficacy.

In Chapter 14 **Helen Walkington** describes a ‘student-researcher’ pedagogy outlining facilitating 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. She argues that 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 and differences in the student engagement and potential for each format to promote self-authorship are described. 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.

**Richard Hodgkins** and **Joanna Bullard** describe the challenge of keeping lecture material up to date in very rapidly evolving fields within geography in Chapter 15, taking the example of glaciology. Their 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. They argue that communication of complex and changing science 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.

**Phil Klein**, **Karen Barton**, **Jessica Salo**, **Jieun Lee** and **Timothy Vowles** start Chapter 16 by focussing on teaching geographic concepts through issues-based inquiry with the premise that part of becoming a geographer is learning the discipline's conceptual framework. Their chapter illustrates several inquiry-based activities designed to help geography students 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. Their examples show that as supplements to lectures, such brief inquiry activities can help students make connections among geographic concepts and foster development of a geographical perspective. They also reveal the diversity of attainable issues-based approaches within introductory and advanced geography courses. The central argument of the chapter is that 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 ways to learn new concepts and link theory to practical applications. 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.

Writing on behalf of the RACE working group of the Royal Geographical Society with institute of British Geographers (RGS-IBG), **James Esson** and **Angela Last** demonstrate 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, Chapter 17 contributes to longstanding and more recent debates over how geography curricula

are shaped by and perpetuate subjectivities, epistemologies and practices underpinned by racist logic. The authors illustrate how insights from decolonial approaches, and Critical Race Theory (CRT) perspectives, can support geographers in creating degree programmes that address and counteract the perpetuation of ‘white geographies’, that is the racist and colonial assumptions that are normalised and circulated through our institutional arrangements and practices. They 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.

Chapter 18 sees **Avril Maddrell** and **Edward Wigley** write on the topic of teaching emotionally challenging material. They use a case study of teaching a module entitled ‘the geography of death’ to students. Adopting a highly active learning style with scaffolded group discussions, field visits and with creative practices embedded into the assessment, their reflections are especially valuable in framing how particular pedagogic approaches support the teaching of challenging content.

In Chapter 19 **Zoe P. Robinson** takes the stance that geography teaching comes with a set of responsibilities, using sustainability as a lens to explore this concept. Her chapter explores the ways in which geography educators have a responsibility to think about the impact of what we teach and how we teach it on wider society, 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. She argues that 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. Her contribution also acknowledges that we also have a collective responsibility for geography as a subject, to ensure that tensions between human and physical geography do not preclude the discipline from an important role in the growing interdisciplinary arenas of sustainability education and research. Sustainability and internationalisation share similar agendas with regard to being values based and with institutional directives often encouraging their embedding in whole programmes.

**Ash Parton** and **Martin Haigh** write on the topic of internationalisation in Chapter 20 and consider the question: ‘what does internationalisation of the curriculum really mean for my teaching?’ They explore two contrasting curricula that explore ways of adapting a geography 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 a conscious and critical awareness of Western mind-sets. The second adapts Asian ‘dharmaic’ 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 a means for creating more ethically-aware, conative and affective learning.

In Chapter 21 **Michael DeMers** takes GIS as a lens to explore online learning and personalised learning, combined with conditions of self-determined learning or ‘heutagogy’. He describes how Geographical Information Systems (GIS) and Science have evolved from programming and development to include application and modelling, design and institutional implementation, yet notes that the need for specialised, career-specific

instruction has increased and diversified. He argues that the traditional college/university approach of formal GIS instruction is proving outmoded and insufficient to satisfy the needs of a widening set of learners. His chapter describes how a heutagogic approach might be achieved with existing technology and approaches.

Also looking at technology in learning, but this time in fieldwork, **Ian C. Fuller** and **Derek France** take a critical look at fieldwork pedagogy in Chapter 22. They explore how particular forms of practice can support more independent learning with examples of fieldwork practice which enable students to develop as independent learners. The authors discuss a range of field-based approaches in a variety of settings, with a view to developing learner independence and encouraging students to take ownership of their work. Two foci towards developing learner independence are presented: utilising digital technologies in fieldwork; and the use of field-based research. The authors use case studies to suggest that both approaches foster a range of key skills at different levels and for a range of contexts to cultivate independent learning.

### PART III: CAPSTONE AND BRIDGING PEDAGOGIES FOR THE FINAL YEAR

Part III features a range of high impact pedagogies for being successful in honours level study and transitioning from university into the world of further study or employment. These include: pedagogic partnerships; active, experiential learning through fieldwork, group work, studio activities, inquiry- and research-based studies, and work- and community-based projects; developing graduate attributes; and preparing for careers. Authentic approaches to assessment are discussed and exemplified, supporting geography undergraduates to behave as reflective practitioners and developing their skills for lifelong learning.

Recognising that geographers have been among the most vocal advocates for, and early adopters of, partnership working within teaching and learning, in Chapter 23, **Niamh Moore-Cherry** examines pedagogical partnerships, identity building and self-authorship in geography higher education. She notes that 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. She highlights that partnerships can vary in nature and scale, including academic staff, students and professional staff in a variety of combinations and collaborating on a range of curricular, extra-curricular and co-curricular activities. Moore-Cherry references international literature, which suggests that while meaningful partnership working can raise significant challenges for stakeholder groups, it has a transformative capacity. An ethos and culture of partnership in higher education can impact positively on student engagement by supporting the development of an enhanced student identity and sense of institutional belonging. The chapter focuses particularly on pedagogical partnerships and their role in supporting the student journey towards self-authorship. It offers case studies from a variety of international contexts to highlight the diversity of approaches to partnership working within the geography discipline, and the specific impacts on student engagement and learning. The chapter concludes by reflecting on how a partnership approach to pedagogical practice might be progressed to become a more mainstream pedagogy in 21st-century geography programmes.

The chapter co-authored by **Eric Pawson** and **Mark Poskitt** (Chapter 24) focuses on the theme of ‘taking ownership’, that is, the assumption of responsibility for one’s own learning. Their approach combines the reflections of a current student and staff member to give a novel perspective on how students and teachers alike can participate at a deeper level with the learning process. These authors highlight that taking ownership of learning 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. The authors develop their 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. The authors go on to 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. Next, they illustrate the discussion with three case studies of specific learning practices to encourage those who wish to develop their own classroom practices: problem-based learning; undergraduate research; and living laboratories. Finally, 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 a human-dominated planet in the Anthropocene, the authors discuss the implications of assuming joint ownership of their chapter as a combined student and staff writing team.

In Chapter 25, **Shauna Brail** and **Kate Whalen** highlight the value of experiential learning in undergraduate education, focusing on the potential for multi-faceted learning for senior undergraduate students. They begin their chapter 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. The authors progress to explore three types of academic courses that connect learning inside and outside the classroom: 1) placement courses, 2) studio courses and 3) field study courses. Through an examination of these different yet complementary approaches to experiential learning, the authors highlight ways in which course and assignment design – combined with various approaches to experiential learning – enrich and extend student learning beyond the classroom.

**Lisa Mol**, **Michael Horswell** and **Lucy Clarke** (Chapter 26) examine how final year fieldwork in the undergraduate geography curriculum can develop graduate skills. They note that 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 students working independently in a field location, students working alongside staff, or 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 related to physical safety and mental wellbeing which need to be managed carefully. The authors note that 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. They reference the wider literature

and personal case studies to explore the benefits and potential issues associated with all three forms of student fieldwork, comparing examples in order to evaluate the role of fieldwork in the curriculum.

The chapter co-authored by **Jennifer Hill** and **Nancy Worth** (Chapter 27) aims to guide readers to develop assessment and feedback practices that will support geography undergraduate students to behave as reflective practitioners, developing skills for lifelong 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. The 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'. 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 perceptions of dialogic feedforward and charts the resulting impact on student behaviour, achievement and transferable skills. The authors highlight the challenges inherent in authentic assessment approaches and how they might be mitigated, and conclude with wider recommendations for practice.

The aim of Chapter 28, co-authored by **Alice Hovorka** and **Peter Wolf**, is to offer a range of ideas and approaches regarding capstones in geography that challenge students to demonstrate mastery, as well as synthesise and reflect on their learning, particularly as applicable for the wider world. For geography students, a capstone experience offers an opportunity to 'pull it all together' and consider geographical knowledge, skills and values as a whole. 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 authors begin the chapter by setting out the broader context of capstones in geography, highlighting what they seek to do and noting the common formats and approaches taken. Singled out for examination are residential field courses, independent research projects and courses featuring historical disciplinary overviews. The authors continue by emphasising that capstones in geography can be conceived of and delivered in various and innovative ways, which may resonate with increasingly diverse groups of undergraduate students working towards successful engagement with an increasingly complex world. To this end, the chapter details capstones focused on re-conceptualising 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.

**Ifan D.H. Shepherd** explores the interplay between the world of learning and the world of work (Chapter 29). He notes that geography as a discipline, and geography as represented in higher education curricula, straddles the spectrum between vocational at one end and non-vocational at the other. In recent decades, the relationship between the university as a place of learning and the workplace as an environment for learning has become increasingly complex. Shepherd explores how learning and work are inter-related, and how individuals can learn from both contexts in a mutually beneficial way. Based on a review of the literature, he presents a model that defines five levels of student engagement with work and the workplace during their undergraduate studies. At the lowest level, students engage in familiarisation activities about the world of work, while at the

highest level, they learn about the world of work first hand, as temporary employees on placements or internships. A number of case studies are used to illustrate the various kinds of learning experience provided in both university and work environments, which are designed to provide geography students with opportunities to become aware of, and prepared for, employment after graduation. The chapter presents a critical examination of these recent and current practices, and highlights unresolved issues and challenges.

The chapter by **Colin Arrowsmith** and **William Cartwright** (Chapter 30) 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. The institution also promotes engagement between academics and students with industry in solving real-world problems. With this background of university–industry co-operation, curriculum design considers, as a matter of course, embedding employability skills in teaching. The authors review undergraduate programs in geospatial science and surveying, as well as postgraduate masters and doctoral programs taught at RMIT. They begin with a summary of the employability skills required by the geospatial sciences industry and follow this with an overview of the requirements and accreditation standards specified by national and international professional organisations and accreditation boards and authorities. They detail selected case studies, as exemplars of university–industry engagement, before making general observations about the skills acquired through undergraduate and postgraduate partnership with industry, recognised within the broad constraints of these partnerships.

In Chapter 31, **Rachel Spronken-Smith** examines the what, why and how of graduate attributes in geography higher education. She begins her chapter by providing definitions of graduate attributes, considering capabilities, as well as discipline-specific versus generic graduate attributes. She also provides a rationale for why we should consider graduate attributes when designing courses and curricula, moving beyond compliance to sound pedagogical design. The chapter continues with a synthesis of recent literature to identify which attributes or capabilities are relevant for geography graduates 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 (for example in New Zealand the need for strong understanding of bicultural issues). The chapter progresses to outline practical guidelines concerning 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. Key mechanisms to embed graduate attributes in geography curricula include curriculum mapping to ensure all attributes are taught and assessed, and the use of high impact educational practices and signature pedagogies to develop the attributes. However, the author notes that implementing graduate attributes can be challenging, so it is important to seek support from colleagues and educational developers.

In Chapter 32, **Michael Solem**, **Niem Tu Huynh** and **Joseph Kerski** examine the unique challenge of educating geography students about career opportunities. They highlight that 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 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 authors note that the professional possibilities awaiting geography graduates are bountiful and extensive, and very likely to remain so well into the future. They go on to say that 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. The authors introduce three model activities that are designed to help geography students identify and understand the range of career options available to them. The pedagogical approach they advocate goes beyond the ‘nuts-and-bolts’ of helping students write cover letters, format resumes, design portfolios and improve their interviewing skills. Rather these authors 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 organisations. The authors conclude that 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.

In Chapter 33, **Pauline E. Kneale** examines the tensions that exist in designing final year programmes to meet the needs of employers, whilst also satisfying learners and meeting their expectations. 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, which develop skills of networking, discussion and collaborative writing that have currency in many early stages of employment. But these group approaches are at odds with a final year ethos of students demonstrating what they can do alone, through individual research projects, the dissertation and independent assignments. The author develops the argument that students find this change in ethos confusing and it can disrupt their developmental preparation to be effective, team-based researchers in workplace or academic settings. As such, Kneale considers the argument for increasing group-based research challenges in the final undergraduate year. She argues that challenging team-based projects, extending over a semester, offer appropriate development, demonstrate progression, embed research and reporting skills through serious practical experience, and enable exploration into contemporary issues in geography that are relevant, exciting and motivating.

Finally, in Chapter 34 **Jennifer Hill**, **Helen Walkington** and **Sarah Dyer** synthesise the themes from the book as a whole, identifying 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.

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