

Chew-Hung Chang · Bing Sheng Wu
Tricia Seow · Kim Irvine *Editors*

Learning Geography Beyond the Traditional Classroom

Examples from Peninsular Southeast
Asia

 Springer

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ISBN 978-981-10-8704-2 ISBN 978-981-10-8705-9 (eBook)
<https://doi.org/10.1007/978-981-10-8705-9>

Library of Congress Control Number: 2018934434

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Printed on acid-free paper

This Springer imprint is published by the registered company Springer Nature Singapore Pte Ltd. part of Springer Nature
The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

Preface

This book brings together editors from across physical and human geography as well as geography education. The original intention of the team was to put together an edited volume of works from Southeast Asia, arising out of a series of biennial conferences organized by the Southeast Asian Geography Association. As with all edited book volumes, the final lineup of chapters was a result of variable response to the call for papers, a rigorous review process and the prudent selection of chapters that address the theme. While the editorial team was very keen to include as many examples from the region as possible, we were ultimately limited by the range and scope of topics that would fit the theme of the book.

The book is titled “Learning Geography Beyond the Traditional Classroom—Examples from Peninsular Southeast Asia”, with a focus on fieldwork and use of technology in geography from examples in Singapore, Malaysia and Thailand. While Peninsular Southeast Asia encompasses a region wider than the countries mentioned, the countries mentioned also extend beyond the mainland to Archipelago Southeast Asia. This notion is probably fodder for much geographical debate, but the scope of the book is to present a range of examples about how geography can be taught and learnt well beyond the classroom, at least in the countries selected. Four questions come to mind when we ask how geography can be taught better:

What to teach?—What do our students need to learn about the geography subject?

Who we teach?—Who are our learners and how do they learn geography best?

How do we teach?—What are the strategies/techniques we can use to teach geography for deeper understanding?

Where do we teach it?—How can geography be learnt outside the traditional classroom?

How do we know that the learners have learnt?—What are the evidence of learning/assessment?

The “What” and “Who” parts of the book address the relationships between two fundamental aspects of teaching and learning: the subject matter knowledge of the geography curriculum and the needs of diverse learners. The “How” part focuses on

learning design, and its emphasis is on designing thoughtful learning activities that will promote student understanding in the classroom. The “How do we know” focuses on the various forms of formative and summative assessment to check for students’ understanding. Consequently, the book is divided into four main sections that address the theoretical aspects of teaching and learning geography with fieldwork and technology, examples of learning geography through fieldwork and examples of learning with information and communication technology. These sections are constructed to provide for ease of reading, and one must be mindful that there are clear areas of overlap across the chapters.

The key goal of the book is to provide examples that will help educators and education researchers to reflect on their work in advancing geography education. While the examples provided are by no means exhaustive, the editors would urge the reader to extend the ideas and issues presented into their own domains of work, whether that of a teacher, a teacher leader, a teacher educator, an education researcher or an academic geographer. Given the unprecedented changes to our global physical, social, political and economic environments, and the variable impact to communities at the national and even local scales, geographical education will empower our future generations with the knowledge, skills and attitudes to engage these uncertain and complex issues. We have implicitly accepted the importance of fieldwork and argued that using technology for learning geography will happen, just because technology is already available. At the same time, just as the carpenter must select the right tool for the job, the educator also must be mindful that the application of a particular technology must make sense and not simply become technology for technology’s sake. It is timely that we should reexamine these notions and discuss how these practices can be used efficaciously to advance geographical education.

Singapore, Singapore
Taipei, Taiwan
Singapore, Singapore
Singapore, Singapore

Chew-Hung Chang
Bing Sheng Wu
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Kim Irvine

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Part I

What Do We Know About Teaching and Learning Geography Beyond the Traditional Classroom?

As the first part of the book, these four chapters provide the theoretical and empirical background for what teaching and learning geography beyond the traditional classroom means. The two modalities of learning geography with fieldwork and technology “beyond the traditional classroom” are discussed in Chaps. 2 and 3, and the issue of assessment of geography learning in these contexts is discussed in Chap. 4. Chapter 1 outlines the evolution of school geography curricula and the increased focus on topics such as environmental change and globalisation. Education needs to go beyond learning how to read and write; it needs to change the child from a state of daily routine and encounters to one where disciplinary knowledge empowers the child to imagine his or her own future. This has created a rising demand to prepare teachers to conduct fieldwork and to design technology-enabled lessons.

Chapter 2 provides a conceptualization of how an effective field learning experience (in both human and physical geographies) can be conducted. This chapter provides a clear framework for teachers to conduct meaningful learning experiences of geography in the field; to develop a question, to gather and collect data, to process and reorganize the data, and to reflect and make sense of the information collected. There are examples on how students get trained in different ways of conducting fieldwork, understanding the field setting, learning how to operate equipment (for physical geography fieldwork and various other fields). In addition, fieldwork not only develops students’ critical thinking and motivates them towards better conceptual engagement, it also provides opportunities for learning better, to learn to manage time and resources, to learn leadership skills, to negotiate different geographies, to appreciate culture and to make long-lasting friendships.

Chapter 3 discusses how ICT can be used for learning in geography and how to encourage students to learn beyond facts and analyse and apply what they have learnt. Technology should not inhibit learning but should be harnessed to provide the student with the greatest potential to learn geography. While technology has expanded the range of information sources and resources for the teacher, there

should not be wholesale adoption without customization. This chapter continues to discuss the role of teachers as curriculum makers and the importance of choosing the right technology, the learning activity, the key concepts and how they can help students think geographically to take them beyond what they already know.

Chapter 4 provides the key dimensions to evaluate what good geographical assessment entails, and then extending these to assessment in the field and in using ICT. It discusses the challenge of determining what good assessment is and how to extend it beyond the classroom, whether good assessment practices in geography will allow the teacher to determine how well they are teaching and how well the students are learning. In addition, assessment should be considered as an integral part of the curriculum making process, because it helps in the design of instruction that is aligned to the intended outcomes, from the cognitive and skills domains to behavioural and attitudinal outcomes, of the geography curriculum.

Chapter 1

The Where and How of Learning Geography Beyond the Classroom



Chew-Hung Chang, Bing Sheng Wu, Tricia Seow and Kim Irvine

Abstract School geography curricula have been evolving in keeping abreast with the issues that affect humankind in a fast-changing world. Key elements of this evolution include increased focus on topics such as environmental change and globalisation. Furthermore, there is a more explicit articulation on the modes of instruction in curricula documents, often expounding the virtues of technology and field-based learning. This has resulted in a proliferation of ideas in response to a rising demand to prepare teachers to conduct fieldwork and to design technology-enabled lessons. What is intuitive but often ignored is that while the context of learning has been transplanted from the traditional classrooms into new spaces—the field and cyberspace—that the teaching and learning of geography exist within the framework of formal curriculum, in as far as teacher taught activities are concerned. This book provides a collection of critical pieces that support the idea that good teaching and learning of geography in fieldwork and using technology should consider the dimensions of curriculum design, instructional design and resource provision, as well as assessment for such learning activities. Further, the book is organised to clearly describe the thinking, experiences and critical comments to two broad areas of learning outside the traditional classroom—the field and technology.

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Why Does Geography Education Matter?

Geography is a future-oriented discipline. Over the past three decades, geography educators have been concerned with developing school geography that can enable and empower students for the future. In the 1990s, a decade where awareness of environmental issues was gaining momentum after watershed publications that included “Global Warming—the Greenpeace Report” (Leggett 1990) and “Report of the World Commission on Environment and Development: our common future” (Brundtland 1987), the focus of geographical education was to help students develop “their ‘geographic antennae’ and to bring geographic dimensions of all their activities and all events around them into conscious awareness” (Romey and Elberty Jr 1989). At the turn of the millennium, the concern shifted to the need to keep up with “an ever burgeoning ... research frontier in academic geography” (Kent 2000). A range of issues for geographical education was highlighted by Gerber (2001) including the relative importance of knowledge, skills and values, curriculum framing, as well as the use of various teaching methods such as field-work and technology. Indeed, “[t]he main purpose of education is to help (young) people to be prepared for today and tomorrow” (Béneker and van der Schee 2015, p. 287). Certainly, the perspectives presented here are but a sample of the range of issues discussed by the Southeast Asian community of geography educators. However, an apparent theme that runs through these past few decades is that school geography is concerned with empowering learners with the knowledge, skills and values to engage the issues of our time, through various authentic and relevant methods of teaching and learning.

The International Charter on Geographical Education affirms that “geographical education is indispensable to the development of responsible and active citizens in the present and future world” (International Geographical Union—Commission on Geographical Education 2016). Education’s ultimate goal is to empower the learner to become a responsible and active citizen as they function and succeed in society. This is predicated on understanding the knowledge, skills and values that the learner needs. Education sociologist Michael Young proposes an interesting relationship between knowledge, curriculum and the future school or a “Three Futures” approach to curriculum. This approach was based on a review of the relationship between knowledge taught in school and the child’s everyday experiences and three futures scenarios (Muller and Young 2008). This approach focuses on the relationship between knowledge and the curriculum and is described broadly by the school and non-school boundaries of school knowledge in three models, namely

Future 1: boundaries as given,

Future 2: a boundary-less world and

Future 3: the idea of boundary maintenance as a condition for boundary crossing

In the Future 1 model, knowledge is inherited and there is little room for change or development. Indeed, the transmission of knowledge is crucial to maintaining the

boundaries of school knowledge in the F1 model. In the Future 2 model, the goals of education are to ensure the employability of students when they graduate from the schools. With increased focus on applied subjects and vocational training, the school subject disciplines are weakened. A typical response to the importance of learning subject discipline knowledge might be that there is no need to learn facts as one can always “google it”. In an F2 curriculum, learners do not see a need for disciplinary knowledge and can get by with vocational training and everyday knowledge. The problem with this model is that people do not know what they do not know. There is a danger of an over-socialisation of knowledge, uncritical acceptance of unreliable sources or cynicism over information found on the Internet. This debate has been brought to the fore during the 2017 US presidential election. The F2 future may encourage the learner to become overly sceptical, criticise and refute all knowledge that is taught in schools, very likely referring to their own constructed naive theories. A middle ground is needed to help learners engage the information they encounter, within the contextual understanding of school knowledge, and ask critical questions that will develop deeper understanding of the issue at hand. Such is the Future 3 or F3 curriculum proposed by Michael Young (Young 2014). Unlike Future 1, the boundaries of knowledge do not stay stagnant in F3. Disciplinary subjects are supported and challenged by the “discoveries by members of the disciplinary communities [academics], that are associated with and by the research undertaken by associations of teachers with their expertise in how different children learn and what the best activities are that will encourage them to take their learning further” (Young 2014, p. 66). Geography teachers will want to help students develop an understanding of their everyday knowledge within the realms of school and disciplinary subject knowledge.

Knowledge in school is a social construct of the interactions between different groups of people, often subjected to the notion of politicisation of “significant power groups” (Marsden 1989, p. 509). Some of these stakeholders include the state, curriculum planners, academic geographers, geography educators, teachers and students (Chang 2014). Indeed, the school knowledge of a subject discipline is produced by a specialist community where the knowledge is “created by ... disciplines ... with some rigorous and demanding procedures and practices, put in place to test knowledge claims ... to ensure that knowledge created is reliable and truthful” (Lambert 2014).

Young (2011) refers to this disciplinary knowledge as powerful knowledge, as it is “dependable, and testable, taking the learner beyond their experience” (Young 2011, p. 182). Education cannot merely provide access to learning how to read and write; it needs to change the child from a state of daily routine and encounters to one where disciplinary knowledge empowers the child to imagine his or her own future. Maude (2016) proposes five types of powerful geographical knowledge:

1. knowledge that provides students with ‘new ways of thinking about the world’;
2. knowledge that provides students with powerful ways of analysing, explaining and understanding;

3. knowledge that gives students some power over their own knowledge;
4. knowledge that enables young people to follow and participate in debates on significant local, national and global issues; and
5. knowledge of the world.

Geography disciplinary knowledge inherently includes all five types of knowledge as proposed above. It also responds to the issues raised by geography educators over the last three decades of increased awareness of issues, developments in academic geography and to address knowledge, skills and values that a child needs to engage the future.

In essence, powerful knowledge allows the child to engage new information in a F3 curriculum critically, asks questions about the information based on subject disciplinary knowledge and develops new ways of thinking, powerful ways of analysing, explaining and understanding, takes control of his/her own knowledge and takes part in international debates on issues, thereby enabling him/her to succeed in the world.

In F3 curriculum, powerful knowledge provides a disciplinary lens for inquiry so that the student is able to see the relevance of knowledge to society. Perhaps the question to ask is how can powerful knowledge be taught to students?

As issues and challenges of the world shape the development of academic geography, these developments will eventually find their way into school geography curricula. These changes comprise greater focus on issues of environmental change and globalisation. Besides, developments in education research and the discourse on educational approaches have focused on the value of technology and field-based learning. Gerber (2001) has mentioned the role of fieldwork and technology specifically for a reason. Consequently, this has resulted in higher expectations on teachers to conduct fieldwork or technology-rich lessons.

Real Geography for Students in a Real World

Laws (1989) argues that “real geography depends on good fieldwork”. Indeed, fieldwork allows students to develop a holistic and synergistic understanding of geographical issues. While much has been written about fieldwork and its place in geography (Kent et al. 1997), the key value proposition of fieldwork in school geography is in its ability to provide an integration of the theoretical and practical concepts taught in the classrooms through the actual hands-on experience in the field.

Within the F3 curriculum model, geography can be learnt through fieldwork, in allowing students to engage issues based on their geographical understanding of the world. Fieldwork helps to arouse students’ interest on an issue, provokes students to identify problems and ask questions, develop perception and appreciation of changing landscapes and enjoy learning about the world they live in (Law 1989). Embedded within these attitudinal objectives of geography fieldwork are the

associated knowledge and skills to understand the relationship between the physical features with human landscape and to associate the phenomena which together comprise the geography of an area (Law 1989).

Despite the benefits of fieldwork, the key constraints to using this approach to learning stem from organisation constraint factors such as human resources and time. Bringing a big group of students to the field may be a challenge. There is also the demand on the teachers to do a proper reconnaissance of the site. In addition, teachers have to be mindful of the costs involved in the fieldwork while meeting the budget requirements of their school. As Information and Communication Technologies (ICT) have advanced significantly over the last few decades, there must be ways that ICT can be used to support learning geography of the real world. Favier and van der Schee (2009) suggested that we can have students to investigate real-world problems by combining fieldwork with ICT. We are not suggesting that learning geography with fieldwork or ICT is mutually exclusive, but rather there are opportunities to use both these teaching approaches in a F3 curriculum.

As ICT has advanced rapidly in the past few decades, making searches for geographical facts easily accessible, there is a need to examine how we can get students to move beyond simple acquisition of knowledge to develop their skills to find such facts (Favier and van der Schee 2009). This is especially important when students left unguided can potentially become “uncritical of the information that they find” through Internet search (Parkinson 2013, p. 193). Indeed, we would like to educate children to find information and make sense of what they have found using their geographical ways of thinking—the ideals of F3 curriculum. In other words, students should be able to engage the disciplinary knowledge of geographical thinking to explain, analyse, evaluate, form an opinion and maybe even take action on what they have learnt from the information they have found (Muller and Young 2008). Hence, ICT use can play an important role in helping students learn real geography.

Indeed, ICT can help students to develop knowledge and understanding of “locations and places in order to set national and international events within a geographical framework and to understand basic spatial relationships” (International Geographic Union—Commission on Geographical Education 1992). ICT takes a child beyond the map to an interface where the spatial information can be represented in three dimensions, children can input, manipulate, analyse and retrieve spatial data, so as to identify patterns and relationships between the spatial and non-spatial data. These various Geo-Spatial Technologies enable children to visualise, represent data and understand the real world (Bednarz 2004). ICT can also take the children’s learning about the real world beyond their desktop computers to mobile devices such as mobile phones and tablet PCs. There is no denying that children today are already utilising ICT in many aspects of their lives. In a sense, using ICT is an integral part of the real world that they live in. The question then is how do we ensure that the use of ICT for learning geography supports the F3 curriculum. We are not interested in simply providing factual knowledge to our students. Neither are we interested in simply teaching them the skills to search for information. We would like to see students engage the information that they find critically and are supported by their geographical disciplinary knowledge.

What Is This Book About?

While the preceding paragraphs have presented an argument for school geography that must be taught so that it matters to the future of our children, the challenge in any edited book volume is to curate chapters that would come together to provide a compelling narrative, and in this case, an argument for fieldwork and ICT use that will support a F3 curriculum in geography. Lambert and Hopkin (2014) propose that the teachers are key stakeholders within the curriculum-making process. Even if there is a state-mandated curriculum, teachers make decisions about sequencing topics, selecting materials, designing learning activities and assessment, on a daily basis. The argument then is that for geography to be taught well, and subsequently learnt well, the learners' experience, the teachers' choices and the body of knowledge that constitute school geography cannot be independent nor mutually exclusive. In other words, how well the student will learn is dependent on how well a teacher understands the learner's profile, the teachers' subject matter knowledge and the instructional approaches to be used (Lambert and Hopkin 2014).

While the book is organised into four distinct sections for a logical reading flow, the issues surrounding the curriculum-making process in using fieldwork and ICT as ways of teaching geography frame the discussions of the individual chapters. The first section of the book provides the key discussions based on the current understanding about fieldwork and ICT and how the associated learning can be assessed. The second section is dedicated to examples of fieldwork across several country contexts—Malaysia, Thailand and Singapore. The issues of subject matter knowledge, pedagogies as well as the constraints to instruction and assessment are also discussed within these selected chapters. The third section is focused primarily on ICT use for teaching and learning geography, with discussions on the use of Geo-Spatial Technologies, mobile devices and authentic learning. Based on this line-up, we are unable to offer a comprehensive and exhaustive list of country examples or a list of issues for discussion. Instead, the intention of this first edited volume on teaching and learning geography beyond the classroom is to highlight some interesting and keystone examples of issues that will encourage researchers to strengthen the scholarship in these areas. Indeed, this will become a book of examples that could inform further research or innovations in teaching and learning geography beyond the traditional classroom.

Teaching and Learning Geography for the Future

In reflecting about the future of geography, the subject “offers the opportunity to acquire knowledge and skills to see clearer how things are running on planet earth and what we can do differently on a local as well as on a global scale” (Béneker and van der Schee 2015 p. 287). Chang (2015) argues that teaching school geography is not just about teaching a subject, but there is opportunity for the teacher to educate a

child and that “[if] we truly embrace the notions of learning about human-environment interaction, space, place, movement and time, then the geography subject allows us to teach a person how to use one’s imagination and to be able to think and reason and to decide on how to live based on one’s understanding of the environment” (Chang 2015, p. 182).

In Gerber’s (2001) survey of geography educators from 32 countries, only 1 out of the 43 respondents for the item reported that fieldwork was not used in teaching and learning of geography. While all the 43 respondents for the item reported that some form of media is used in geography teacher education, the survey did not ask explicitly on the use of ICT. Nevertheless, there is an indication that the place of fieldwork and ICT use cannot be ignored in geography education. The chapters in this book will explore how we can use fieldwork and ICT to teach and learn geography beyond the classroom, with a view to improve geography education for future generations.

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Chapter 2

Learning in the Field—A Conceptual Approach to Field-Based Learning in Geography



Diganta Das and Kalyani Chatterjea

Abstract Fieldwork has been considered a hallmark of geographical education by teachers and researchers alike. In the literature review by Kent et al. (1997) on the issue of the effectiveness and importance of fieldwork in geographical education, field studies were found to provide the integration of the theoretical with practical concepts taught in the classrooms. Also, Kent et al. (1997) proposed that fieldwork is commonly accepted as a process that encourages holistic geographical understanding of issues. However, some school teachers commonly conduct fieldwork as field trips where they are in reality just tours or excursions (Chang and Ooi 2008). Students remain largely passive and assume the roles of tourists. Inevitably, these field trips can be less academic, as students are not deeply engaged in the fieldwork process (Brown 1969). On the other hand, properly organized and academically well-articulated field trips can provide students with learning experiences, comparative knowledge, critical understanding as well as skills that are important to an understanding of the world around them (Kent et al. 1997). In practice, many of the fieldwork activities conducted by teachers fall somewhere in the middle on both dimensions. This chapter provides a conceptualization of how an effective field learning experience can be conducted. With a literature review of the range of practices across contexts, the chapter will then uncover steps to identify the issue in the field under study and develop a question, to gather and collect data, to process and reorganize the data, and to reflect and make sense of the information collected. While this simple approach is common to most inquiry-based learning, it provides a clear framework for teachers to conduct meaningful learning of geography in the field.

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Introduction

Fieldwork allows students to carry out an exploratory task at a field site, outside the classroom to attain some intended learning outcome (see Sim et al. 2005). Through the field, learning takes place with primary experiences of collecting data outside a classroom environment (see Lonergan and Andresen 1988). Cindi Katz (2009, p. 251) observed that fieldwork could be ‘a means toward examining the relationships between people and their environments,’ and it may help in carefully documenting those relationships and their everyday dynamics (see Das 2014). Fieldwork is hard work, and it contributes to students’ overall educational and social skill development. Therefore, Phillips and Johns (2012) observed that fieldwork differentiates the genuine geographer from the not so genuine one. Fieldwork is a fundamental element for learning geography where ‘[g]eographers learn through the soles of their feet’ (Lindsey 1996). Working in the field, geographers collect information and engage themselves in the world beyond the four walls of the classroom (Phillips and Johns 2012). Students and researchers get the opportunity to connect with people and places, develop their field skills, and extend their horizon of geographical knowledge (see Lindsey 1996). Lonergan and Andresen (1988) identified a few primary aims of doing fieldwork in social sciences—first, the field provides opportunities to practice techniques not possible in classroom context; second, field provides opportunities to acquire first-hand knowledge not possible otherwise; third, field studies enhance group learning activities among students; fourth, pursuing fieldwork helps in understanding concepts taught in classroom earlier; and finally, fieldwork enhances higher order learning and arouses concern and appraisal for environment (p. 65).

While geography students learn various concepts and theories in both human and physical geography in a classroom setup, fieldwork helps them to understand the concepts better. Fieldwork, therefore, ‘integrate theory with practice.’ (see Sim et al., p. 33; Lai 2000). With hands-on experience, fieldwork fuels students’ mind with critical thinking and motivates them toward better conceptual engagement. It also helps students getting trained in different ways of conducting fieldwork, understanding the field setting, knowing how to operate equipment (for physical geography fieldwork), and learning various field methods—from observing to interviewing (for human geography fieldwork). Fieldwork has been seen as the bridge between theories and practical concepts (Kent et al. 1997). Former president of Association of American Geographers (AAG) Professor Robert Marston (2005) observed that fieldwork has the power to provide rigorous training and experiences, which ‘cannot be replicated in the classroom’ (p. 3). Keeping in view the ways fieldwork helps in understanding classroom concepts in geography, the objective of this chapter is to provide a conceptualization of how an effective field learning experience can be conducted through inquiry-based learning and attempts to provide a clear framework to conduct meaningful learning of geography in the field. The next section delves into a literature review of geographical learning through fieldwork, various stakeholders, and their contribution to fieldwork along with a