

Not nearly enough geography! University provision for England's pre-service primary teachers

Simon Catling

School of Education, Oxford Brookes University
sjcatling@brookes.ac.uk

Abstract

Research into geography provision in primary initial teacher education [ITE] courses in the United Kingdom and worldwide is very limited. England educates pre-service primary teachers of 5-11 year olds to be 'generalists' who teach the full range of curriculum subjects, including geography. This article identifies that the provision of teaching time for geography is low and declining in England's primary initial teacher education courses. It presents a picture which may not seem dissimilar in other parts of the world. With only about half of pre-service primary teachers in England having studied geography after age 14, their subject knowledge appears weak. University-based ITE subject sessions rarely extend beyond introducing them to England's primary geography requirements and to some approaches to teaching geography. Prospective primary teachers observe and teach limited, if any, geography in primary schools. Developing their geographical understanding and teaching capability is highly challenging for tutors. There are concerns that the current situation may well decline further. Encouragement exists to develop geography provision in primary ITE but the opportunities to achieve this appear increasingly constrained as the pre-service environment moves from university-led to school-led provision. International comparative research is essential to understand better pre-service primary teachers' learning to teach geography.

Key words primary geography, initial teacher education, pre-service primary teachers

Introduction

The pre-service education of primary teachers is important to the education of younger children wherever they are. It is essential because primary school pupils need to be taught by informed, thoughtful, curious and engaging teachers, who are capable of teaching well across the full primary school curriculum. Geography is a subject which appears in many national curricula, in some as a named subject but most often within a social studies curriculum, as in Singapore and the USA. Very occasionally it may be linked with science subjects as in Denmark and Germany. In whichever context prospective primary teachers need to become knowledgeable about the subject and its pedagogy in order to teach geography effectively to their pupils. This requires that there is the opportunity in pre-service primary teacher education courses to learn about geography and its teaching. While there is little evidence beyond anecdotal information, it seems that geography is usually a small component of a social studies or similar module within pre-service teacher education courses, just as is the case for other subjects (Kirk, 2012; McCreery, 2005; Welsh & Henley, 2014; Randall, Richardson, Swaithe & Adams, 2016). This seems to be so even where geography is a listed subject in the curriculum requirements for primary pupils, such as in the UK, Australia and Ireland. To understand the situation, nationally and internationally, there has to be a starting point. The purpose of this article is to

identify the provision of and situation for geography in initial teacher education [ITE] for generalist primary teachers in England.

As elsewhere in the world, research into geography in primary ITE has been neglected in the United Kingdom. Primary ITE courses in Ireland and The Netherlands contain geography components (Waldron, Pike, Greenwood, Murphy, O'Connor, Dolan & Kerr, 2009; Blankman, van der Schee, Volman & Boogaard, 2015), but in both countries time to develop pre-service primary teachers' geographical knowledge and teaching is reported to be constrained, and researchers state that much more needs to be investigated. In the USA approaches in ITE to teach elementary school geography are even less clear, because geography is included only as a component of the social studies curriculum, and is yet to be investigated informatively (Womac, 2014). These few studies indicate that research into provision is scant (Salinas-Silva, Perez-Gallardo & Arenas-Martija, 2015; Xuan, Duan & Sun, 2015), whereas awareness internationally of pre-service primary teachers' geographical knowledge is better informed (Catling, 2014). In England, research has recently been published about secondary geography ITE (Geographical Association [GA], 2015), but little has been reported concerning provision in primary geography (Catling, 2004a, 2006).

Context

This article draws on the findings of studies undertaken in 2013 and 2014 into the provision of geography for generalist primary teachers in England, to explain the situation (which is in flux (Department for Education [DfE], 2016)) and to encourage research nationally and internationally. It provides an example of the situation in one country, England, which it is hoped will raise questions for and interest in other nations about their geography provision for pre-service primary teachers. This research is pertinent because in England teacher education courses are under scrutiny, leading to changes in the focus and depth of learning expected of pre-service primary teachers in curriculum subjects. The *Carter Review* (Carter, 2015) proposed that the focus of England's ITE courses should continue to be on the key aspects of teaching and learning, subject understanding, assessment, classroom management, special needs and disability, and pupil behaviour. It argued that there should be a heightened emphasis on subject knowledge and subject specific pedagogy in all subjects teachers will teach. This stance was further supported by the *Munday Report* (Munday, 2016) outlining the core content for ITE. For secondary teachers this concerns usually just one subject. For primary teachers such a requirement will cover the full range of curriculum subjects. This may be considered a valid expectation, but it begs questions about the opportunities for geography and the other subjects in primary ITE courses which are subordinate to the core subjects of literacy, mathematics and science. It is, therefore, important to understand and appreciate the state of geography provision in primary ITE courses.

Primary ITE in England introduces pre-service teachers to teaching and learning in the early years' foundation stage (3-5 year olds) and primary schooling (5-11 years olds). Early years and primary teachers are 'generalists' who normally teach all the curriculum subjects to their class. Figure 1 outlines briefly the geographical aspects of England's Foundation Stage area of learning, 'Understanding the World' (DfE, 2014), and its national curriculum framework requirements for primary age pupils

(DfE, 2013a). Geography is expected to be taught in all primary schools. It may appear as a separate subject or in a cross-curricular structure. The national curriculum framework emphasises pupils' learning of subject knowledge (DfE, 2013a), listing the geography topics that should be covered and inferring information to be learnt. Primary teachers therefore must develop their understanding of geography, and all other curriculum subjects, to meet statutory requirements about subject teaching.

Early Years Foundation Stage <i>Understanding the World</i> 3-5 year olds should learn about:	Key Stage 1 Geography 5-7 year olds should learn about:	Key Stage 2 Geography 7-11 year olds should learn about:
<ul style="list-style-type: none"> • Features of their own locality. • Similarities and differences between places. • That and how environments may vary. 	<ul style="list-style-type: none"> • The names and locations of the continents and oceans, and some characteristics and the capitals of the countries of the UK. • Similarities and differences in and between a small area in the UK and in another country outside Europe. • Some elements of physical and human geography, including weather, natural and urban features and hot and cold areas of the world. • Maps, globes and atlases, and undertake fieldwork. 	<ul style="list-style-type: none"> • The locations and key characteristics of selected countries, including the UK, and about key lines of latitude and longitude and time zones. • Similarities and differences in and between a UK and a European country region and a region in North or South America. • Key aspects of physical and human geography, including natural environments and processes, settlements, land use, trade and resource access and distribution. • Map reading skills, and undertake fieldwork in the local area.

Figure 1: A summary of the core aspects of school geography in England for 3 to 11 year olds (DfE, 2013a, 2014).

University-led preparation of primary teachers was the norm until the early 2010s (The Teacher Education Group, 2016). University primary ITE provides a one-year post-graduate certificate of education [PGCE] and 3 or 4 year undergraduate [UG] courses. By the mid-2010s the growth of school-led primary ITE – ‘training’ in England’s governmental vocabulary – had reduced pre-service teacher recruitment to university courses severely (National College for Teaching and Leadership [NCTL], 2014a) between 2004 and 2015. University primary ITE recruitment numbers have been reduced from approaching 20,000 during the 2000s to hovering close to the 12,000 a year mark by 2015, while school-led recruitment had risen sharply. During 2014-16, recruitment to university primary ITE courses was about 50% to PGCE and 50% to Undergraduate routes (NCTL, 2014a, 2015). Some 60% of prospective primary teachers entered university-led courses in 2015-16, a decline from 80% in 2013 (NCTL, 2013a), while around 40% followed the rapidly rising – since 2012 – school-led route. Some half of the former and all the latter are graduates. By 2016-17 the school-led and university provider recruitment pattern had been reversed,¹ redirecting most primary teacher preparation from universities to schools, although universities remained significant primary ITE providers, which in many cases were

beginning to support school-led courses. To delineate the current situation and future challenges, and to enable comparisons with school-led provision, this article sets out to establish the situation for geography in university-led primary ITE.

England's *Teachers' Standards* (DfE, 2012; NCTL, 2013b) shape primary ITE provision, though course structures vary as matters of institutional decision-making. To be awarded Qualified Teacher Status [QTS] England's primary pre-service teachers must meet all the standards set out under 'Teaching' and 'Personal and Professional Conduct' (DfE, 2012; NCTL, 2013b). The 'Teaching' standards state that teachers must be knowledgeable about curriculum subjects and areas of learning, teach well planned lessons for all pupils, assess accurately, manage pupil behaviour effectively, provide a safe and good quality learning environment, and hold high expectations of pupils to promote good learning progress and outcomes, expectations which are probably common across nations, such as in Australia (AITSL, 2012), even where not stated explicitly.

Understanding geography in primary ITE courses

To understand the situation for geography, as for any other subject, in England's primary ITE courses it is essential to be well informed about the time allocated, who teaches it, its content and assessment, resource access and use, and pre-service teachers' geographical backgrounds and understanding. It requires knowing about the nature and quality of geography teaching which pre-service teachers observe and undertake during school placements. This article reports on these components of England's university primary ITE geography provision. It draws on data and evidence from a 2014 survey and from other sources, including an earlier survey and research reviews.

To garner an essential understanding of the state of primary ITE geography, in 2014 a survey was undertaken to gather data about provision. This method was considered appropriate given the geographical distribution of universities and the need to access information and perspectives from education tutors responsible for teaching geography components on courses (Robson, 2011). Surveys need not always be of the whole available population. Sampling is appropriate to use to investigate a topic in greater detail (McLafferty, 2016). It involves decisions about the sample size and selection; it can be of a random or accessible population. An accessible population might be one readily available and/or known to the researcher, as a convenience sample. It is an acceptable means to investigate where the population to be studied is not large or perceived to be particularly varied (Newby, 2014). However, sampling may be subject to bias because of size limitations or because the sample is not carefully selected.

It was decided that the most straightforward approach was to use a questionnaire which would be sent to tutors by email for them to complete and return (McLafferty, 2016; Newby, 2014). Questionnaire surveys enable a sample to be reached where the opportunity to travel to widely dispersed sources is constrained. It can be used to gather the information desired in a relatively convenient manner and timeframe (Denscombe, 2014). Given the types and varieties of questions used, time may be allowed for respondents to find out and/or consider the data they provide and

perspectives they offer. Questionnaires can suffer from weak response rates; unlike interviews, questions cannot be clarified; and there is no control by the researcher over when, how and the depth to which the respondent completes the questionnaire other than the timeframe given which may indicate brief or fuller responses. Such constraints can be reduced when using a convenience sample known to the researcher. On balance it was considered the benefits outweighed the disadvantages in order to survey the state of geography in primary ITE courses.

The 2014 survey built on information about geography for generalist pre-service teachers in primary ITE courses from earlier reviews of geography in primary ITE courses (Catling, 2004a, 2004b) and research undertaken during 2004-05 (Catling, 2006), as well as from a survey conducted in 2013 (Bowles & Willy, 2013). The 2004 investigation (Catling, 2006), which was sent to the 69 universities then providing primary PGCE courses, received responses from 50 (72.5%). It was circulated to known geography tutors or to primary course leaders in universities with the request to pass the survey to the relevant teacher education tutor for geography. Returned surveys came by email from primary geography tutors, a small minority of whom had received the survey via their course leader, as was also the case in the 2013 survey. No national list exists in England of ITE primary geography tutors, in contrast to The Netherlands (Blankman et al., 2015) which makes it very difficult to ensure all appropriate tutors are contacted. In 2013 primary ITE provision existed at 61 universities, and contact elicited responses from 34 (55.7%), a decreased return rate. The third fewer responses received in 2013, compared to 2004, partly reflected an 11.5% drop in universities providing primary ITE courses but did not account for the full reduction, which might be explained by a changing ITE environment and alterations in the employment of personnel teaching geography in primary courses.

The 2013 survey

The 2013 survey in England used a questionnaire to gather a sense of the state of geography in primary PGCE courses (Bowles & Willy, 2013). The survey questions are included in column one in Tables 2, 3 and 6. It was a brief survey which focused on hours of provision and asked for perspectives on whether enough time was available and if changes in geography units were anticipated. The context was that primary PGCE courses were required by 2013-14 to increase the number of days pre-service teachers spent on school placements, which some had begun to implement in 2012-13. It was thought that this would lead to a decrease in non-core subject teaching, including a reduction of time for geography. The increase in school-led primary ITE provision was also underway by this time. Some questions reflected the latter context to understand what knowledge there was of the impact of this changing situation. The 2013 survey's findings have been drawn on in this article (Tables 2, 3 and 6) and, as appropriate, comparisons are made to the evidence from the 2004 survey (Catling, 2006).

The 2014 survey

The 2014 sample survey researched provision via selected teacher education tutors who taught the geography component in primary ITE courses (hereafter: primary geography tutors). Tutors in twelve universities (20% of the population) which offered primary ITE courses were invited to participate (Newby, 2014). Ten

responded (83% rate; 16.6% of the population). All these universities provided PGCE courses and eight Undergraduate courses. The sample was selected through contacts known to the author, who were approached directly. Half were female and half male primary geography tutors who attend conferences regularly, wrote about geography education, and shared information about their practices. They can be described as committed primary geography tutors. While this sample was not random nor could be described as a truly representative sample, the author's knowledge of these tutors indicated that they would provide a range of perspectives on geography in primary ITE. The universities selected were located in the North, Midlands and South of England and included pre- and post-1992 universities, in order to provide a geographical spread and balance of provision. Given the sample, these tutors might be expected to provide a positive picture of geography's situation. In fact their responses enabled a broader picture to emerge of the circumstances for geography in primary ITE courses.

The survey was undertaken by questionnaire, sent to contacts by email. Primary geography tutors were asked to provide information about geography in their primary ITE courses. Questions asked for basic data, as well as invited tutors to provide contextualising and reflective feedback. The questions, which are included in column one in Tables 1, 4, 5 and 7, covered topics about the time allocated to and the number of teaching sessions for geography, who taught geography, whether assessment occurred, links to primary school placements, the quality of geography teaching in placement schools, and geography's status in primary ITE. Geography unit content was requested to gain insight into what was taught with respect to primary geography requirements, why these aspects were included and whether developing geographical understanding was an expectation. Tutors were asked at the end of the questionnaire to give their impression of the impact of their teaching. This was intended to elicit additional reflections and their sense of their success with their pre-service teachers.

While some data was amenable to tabulation, much feedback from tutors required interpretive consideration. It is the latter qualitative material which informs this account of the state of geography in primary ITE. The responses were reviewed and grouped to provide key summaries of the information provided (see Tables 1, 4, 5 and 7). In accounting for the situation of geography in primary ITE, tutors' reflective comments provided insight. One outcome was that there was evidence of only limited differences in provision for geography between the PGCE and Undergraduate routes. It should be remembered that this survey drew only on ten universities, one sixth of the available primary ITE courses. However, tutors' responses are related, as appropriate, to other sources about geography for pre-service primary teachers which inform and extend the picture of the state of primary ITE geography.

Additional sources

An account of geography in primary ITE is incomplete without consideration of pre-service teachers' knowledge of geography and reference to geography in England's primary schooling. This was not investigated in either the 2014 or 2013 surveys. To complement the survey evidence, information about pre-service primary teachers' geographical understandings and attitudes is drawn from reports of national and international research (Morley, 2012; Catling, 2014). While the 2014 study enquired about geography in school placements, it needed to be complemented with a sense of

the quality of geography teaching in primary schools. Judgements by Ofsted [England's Office for Standards in Education] about primary school geography are used to describe this situation (Ofsted, 2008, 2011; Iwaskow, 2013a, 2013b).

In drawing on this range of survey and reported sources, the intention has been to provide an overview of the state of geography for generalist pre-service teachers in primary ITE. By using the variety of evidence the aim has been to give a fair account of geography provision in the mid-2010s, at a point when considerable change in ITE has been taking place, with more anticipated. A further purpose has been to create a reference point for future studies. Overall, this evidence indicates that in matters of course provision, several challenges exist for geography tutors in their efforts to prepare pre-service primary teachers effectively to teach geography.

Geography for pre-service primary teachers

Five aspects of geography provision are considered: geography's status and teaching resource; primary pre-service teachers' geography qualifications and attitudes; their subject understanding; the curriculum of primary ITE geography; and the opportunities for prospective primary teachers to teach geography in primary schools.

Primary ITE geography's status and resource

Table 1 provides a summary of the key findings from the 2014 sample survey on which this section draws (other findings appear in subsequent sections and later Tables). Limited reference is made to it other than where necessary. Reflective and informative comments made by primary geography tutors enabled elaboration about the situation for geography in primary ITE.

The subjects of English, mathematics and science received more than half the teaching time in primary ITE, mirroring the balance in most primary schools, and seemingly entrenching the higher status attached to English (literacy) and mathematics (numeracy) since 2004 (Catling, 2006; DfE, 2012; NCTL, 2014b). Several geography tutors stated that they were not always successful in arguing to retain their teaching sessions while most reported reductions in timetabled contact and changes to tutor availability, room allocations and group sizes, which inhibited geography's course presence and its teaching. In 2014 many geography tutors were concerned about the subject's marginalisation and its future as a worthwhile ITE course component, though apparently the subject remained valued by course managers. Many tutors anticipated that geography provision would decline because primary school-based ITE provision was increasing markedly. They felt this reinforced geography's modest status, intimating that deep understanding of geography for primary teaching was not regarded as essential.

Geography almost always appeared in a module on the humanities. In a few courses it was part of a 'foundation subjects' or cross-curricular module. In the humanities, geography was linked with history, religious education and, occasionally, some tutors noted, citizenship. Each humanities subject, tutors commented, was usually taught discretely, although some courses included sessions which cut across the subjects, such as enquiry-based planning. Very occasionally connections were made with

different subjects such as science or drama. No PGCE and very few UG courses included geography in more than one module. The strong subject focus occurred because tutors felt strong pressure to promote strengthened subject knowledge among primary school teachers (Ofsted, 2011; DfE, 2013; NCTL, 2013b, 2014b; Carter, 2015). An integrated structure was viewed as diluting subject emphasis. The term ‘humanities’, it appears, was a title rather than the consideration of the human interconnections of these subjects. This provided, at least, an explicit subject existence for geography.

Survey topics	Responses	N=10 (PGCE=10; UG=8)
What value appears to be ascribed to geography in your primary ITE courses by course managers?	<ul style="list-style-type: none"> • High value • Valued but not strongly timetabled • Valued but precarious • Modestly valued 	<p>1</p> <p>5</p> <p>1</p> <p>3</p>
What are the key influences affecting the provision for geography in your primary ITE courses?	<ul style="list-style-type: none"> • Timetable pressures resulting in low time • Teaching time reduction • Attitude of managers • Increase in time spent in placements schools 	<p>3</p> <p>3</p> <p>1</p> <p>3</p>
What do you consider to be the future for geography for pre-service teachers in your university’s primary ITE courses?	<ul style="list-style-type: none"> • Reduction of unit time – marginalisation • Impact of school-led primary ITE reducing time • Possible increase in teaching time • Whether teachers will receive geography CPD 	<p>6</p> <p>2</p> <p>1</p> <p>1</p>
In hours, what is the contact teaching time in your geography unit(s)?	<ul style="list-style-type: none"> • PGCE 2-6 7-10 11-15 16-20 • UG 2-6 7-10 11-15 16-20 20+ 	<p>5</p> <p>2</p> <p>2</p> <p>1</p> <p>2</p> <p>1</p> <p>3</p> <p>1</p> <p>1</p>
How does the time allocated overall to foundation subjects compare with that available overall for English, mathematics and science?	<ul style="list-style-type: none"> • More time for foundation subjects overall • More time for English, mathematics and science overall 	<p>0</p> <p>10</p>
How does the time allotted to geography compare to that for other foundation subjects?	<ul style="list-style-type: none"> • Equal time across foundation subjects • More time for geography than for most foundation subjects • Less time for geography than for most foundation subjects 	<p>6</p> <p>1</p> <p>3</p>
How many taught sessions are there in your geography unit(s)?	<ul style="list-style-type: none"> • PGCE: 2-4 5-7 8-10 11-15 • UG: 2-4 5-7 	<p>6</p> <p>2</p> <p>1</p> <p>1</p> <p>2</p> <p>3</p>

	8-10 11-15	1 2
What are the contexts of the unit(s) for or including geography in your primary ITE courses?	<ul style="list-style-type: none"> PGCE: Humanities module Cross-curricular module UG: Humanities module Cross-curricular module 	7 3 7 1
Which subjects are taught alongside geography in cross-curricular unit(s)?	<ul style="list-style-type: none"> All foundation subjects History and RE Other subjects 	2 7 1
Is geography taught in more than one unit?	<ul style="list-style-type: none"> PGCE: Once only UG: Once only Twice 	10 7 1
In which year (if undergraduate) and at what time of year (in PGCE) are the geography unit(s) taught?	<ul style="list-style-type: none"> PGCE: Autumn Autumn/Spring Spring UG Year 1 Year 2 Years 1 & 2 Years 2 & 3 	1 6 3 2 3 2 1
Is there independent study time allocated to your geography unit(s)?	<ul style="list-style-type: none"> UG: Unspecified but available 10-20 hours 21-40 hours PGCE Unspecified but available 10-20 hours 	6 2 2 8 2
Is each primary geography tutor on a full-time or part-time permanent contract or bought in as an associate tutor?	<ul style="list-style-type: none"> 1 F-T 2 F-T 1 F-T & 1 P-T 1 P-T 	6 1 1 2
What teaching room provision is there for geography?	<ul style="list-style-type: none"> Geography room Science room Allocated non-specific room Varied non-specific room use week to week 	2 1 6 1
Are handbooks provided for the geography units in hardcopy and/or virtually?	<ul style="list-style-type: none"> Virtual copy Hardcopy & Virtual copy None 	6 3 1

Table 1: 2014 sample survey: Primary ITE geography status and resource

Teaching geography on a PGCE course took place essentially in the autumn or spring periods, while it occurred in Year 1 and/or Year 2 on a UG course, rarely in the 3rd year. Table 2 indicates that in 2013 the majority of teaching on PGCE courses varied between 2 and 10 hours. The 2014 sample survey found a similar situation. In the majority of courses this was in between two and seven sessions (Table 1). In 2004 average teaching contact time for primary PGCE pre-service teachers was reported to be 10.5 hours (Catling, 2006). This average had declined to 7.9 hours by 2013 when the increased number of days spent in schools in primary ITE courses reduced campus-based teaching time, particularly on PGCE courses, in all subjects. The 2014

sample survey indicated that average teaching time on PGCE courses would be some 7.75 hours for 2014-15 recruits. Only a quarter received more than 10 hours by 2014, with the highest at 16 hours. A third of tutors were certain that their time for PGCE geography would be reduced (Table 2), while about half thought hours would remain the same. In UG courses teaching time was indicated to be higher, as might be expected, ranging from 2 to an exceptional 28 hours over two to fourteen sessions. The average UG contact time was 13.4 hours but several tutors' comments indicated that they felt this might be reduced.

Survey Topic	Response	% (N=34)
How many hours are allocated to your primary PGCE geography unit(s)?	<ul style="list-style-type: none"> • 2-6 hours • 7-10 hours • 11-15 hours • 15-20 hours • Hours not given 	36% 27% 24% 6% 6%
Do you anticipate any changes to the hours available for primary PGCE geography next year?	<ul style="list-style-type: none"> • Increased hours • Same hours • Reduction in hours • Unsure about change to hours 	0% 48% 36% 16%
Do you consider that you have enough time on the primary PGCE to teach geography?	<ul style="list-style-type: none"> • Enough time • Not enough time • No view expressed 	18% 75% 7%
Are you considering making content changes to your PGCE geography unit(s) for next year?	<ul style="list-style-type: none"> • Considering geography unit changes • Not considering changes • Not yet know whether will make changes 	48% 6% 46%

Table 2: 2013 universities survey of geography in PGCE courses: Time for geography

The majority of PGCE and UG geography units were taught in less than the average time for teaching, with a few having less than half this time. In the decade to 2014 there was an overall 25% reduction in PGCE geography teaching hours. This contrasted with the increased emphasis on a wider range of geography's subject content introduced into England's revised 2014 national curriculum (DfE, 2013a). It was a very clear view of PGCE geography tutors that there was not enough time to cover what pre-service teachers needed to understand to teach geography effectively (Table 2). Geography unit changes would very likely be needed within the same or less time. Contracting teaching time in ITE courses enhances the challenge for tutors to develop pre-service primary teachers' geography teaching capabilities.

The 2013 survey enquired about what knowledge tutors had of geography teaching in school-led primary ITE. There was negligible information about what was happening, in part because many developments concerning geography were intended for the year ahead and details were unclear, though already a third of tutors considered time for geography would not be enough (Table 3). Further comments in their responses indicated that tutors felt that provision for geography either is weak in extant school-led ITE or would be. The impact of the move to school-led courses on geography and other subjects will not be clear for some time.

In PGCE and UG courses teaching was augmented by some independent study time (Table 2), either for directed tasks or as expected personal commitment, but tutors indicated that this varied between low expectations and as much as 40 hours for UG pre-service teachers. Tutor comments stated that such study time was designated for reading, out-of-class tasks and/or assignments – or was not guided at all. It seems that overall time for geography across primary ITE courses had no consistent pattern. There exists no national guidance for minimum or ‘base time’ to develop pre-service teachers’ subject knowledge and teaching skills. To support prospective primary teachers almost all geography units are supported by a handbook providing session and pre or follow-up reading and other source information. These are normally provided now on course websites.

Survey Topic	Response	% (N=34)
In relation to school-led primary ITE (through Teach First, School Direct and SCITT courses), what are the teaching hours provided for geography by your HEI?	<ul style="list-style-type: none"> • Not yet provided, so not known • 2-6 hours • 7-10 hours • 11-15 hours • 15-20 hours 	81% 8% 8% 0% 3%
Do you consider that Teach First, School Direct and SCITT primary ITE courses do or will provide enough course time for geography?	<ul style="list-style-type: none"> • Provision coming next year, so not yet known Current known provision: <ul style="list-style-type: none"> • Provide enough time • Do not provide enough time • No information about provision 	42% 3% 36% 19%

Table 3: 2013 universities survey of geography in PGCE courses: Perception of geography provision on school-led ITE courses.

In most, perhaps very many, primary ITE courses a lone specialist tutor taught the geography component (Table 2). Since 2004 there had been a slight increase in the geography teaching undertaken by part-time and short-term contracted tutors, including possibly by non-specialists. Several geography tutors stated that as geography teaching time reduced they increased their other responsibilities. Given the volatility of the financial changes in university-led ITE through recruitment reduction, this might be expected. Such circumstances enable the movement or replacement of full- and part-time and short-term specialist and non-specialist staff in an era of course time reduction. In these situations the effect, inevitably, may well be to limit pre-service teachers’ access to specialist advice on primary geography outside tutors’ contracted teaching time, as a couple of tutors noted. This decline in the availability of specialist tutors indicates a weakening of the support which pre-service teachers might seek for their preparation of geography teaching.

While a few courses provided access to a geography-focused room, ITE geography sessions were reported to be taught more usually in general-usage rooms, and not necessarily consistently in the same room (Table 2). In such cases, pre-service teachers might see no displayed primary geography resources and little or no children’s work in geography, a situation compounded if part-time geography tutors had no base and were only on site to teach. This situation reinforces the concern that geography’s standing in primary ITE courses is low. Primary geography can be an ‘invisible subject’ outside taught sessions. Such circumstances undermine the

consistent encouragement needed to foster pre-service teachers' positive appreciation of geography's knowledge and teaching.

Primary pre-service teachers' geography qualifications and attitudes

The subject qualifications and attitudes which pre-service primary teachers bring to their generalist ITE course provide information relevant to the teaching of subjects such as geography. In the 2014 sample survey tutors' overall perceptions of their UG and PGCE students' backgrounds was asked for. To provide a more detailed insight into pre-service primary teachers' geography qualifications and attitudes to geography, research from other studies is referred to (Catling & Morley, 2012; Catling, 2014; Morley, 2012).

Survey topics	Responses	N=10 (PGCE=10; UG=8)
What is your perception of pre-service teachers' knowledge of geography?	<ul style="list-style-type: none"> • PGCE: very varied mix of backgrounds, many without 16+ qualification, some with A level, few with geography or related subject degrees • UG: very varied backgrounds, many without 16+ qualification but some with A level. • PGCE and UG: a sense of overall weakness in pre-service teachers' geographical knowledge and understanding, including those with a geography qualification (though exceptions were recognised). 	<p style="text-align: center;">10</p> <p style="text-align: center;">8</p> <p style="text-align: center;">10</p>

Table 4: 2014 sample survey: Tutors perceptions of pre-service teachers knowledge of geography

Pre-service primary teachers bring varied geography backgrounds to their ITE courses, according to their tutors (Table 4). Previous studies in England indicate that in UG courses about half have an age sixteen plus [GCSE²] geography qualification or its equivalent (Catling & Morley, 2012; Morley, 2012). Tutors' 2014 feedback indicates that the balance is probably higher on PGCE courses and closer to 60%, but no figures were provided. Those prospective teachers lacking a geography qualification completed their geographical education aged fourteen. It seems that about one sixth of pre-service primary teachers have a geography or related subject qualification at Advanced level, taken usually at eighteen years old. Tutor comments indicate that few PGCE students, though, have geography or related subject degrees, though the percentage is uncertain. While invaluable to have geography graduates studying to be pre-service primary teachers, it must be noted that geography degrees vary in content, with some graduates having balanced physical and human geography backgrounds while others may have specialised heavily within their degree. This is pertinent to teaching primary geography (see Figure 1). There is no certainty that a geography graduate will be well-grounded across the subject. Indeed, pre-service secondary geography specialists are noted to have gaps to address in their subject knowledge during their PGCE course (GA, 2015). A similar concern is indicated by some primary geography tutors.

Just below 50% of UG pre-service teachers hold positive attitudes to geography (Catling & Morley, 2012; Morley, 2012), seeing it as an interesting and important subject, while around a quarter feel negative. These feelings resulted, almost always, from their experiences of being taught geography engagingly or tediously during their secondary schooling. Even of those holding positive views about geography a small minority were critical of the quality of their secondary geography teaching. This may be similar among PGCE students but the evidence is anecdotal. Even so, given their schooling backgrounds, it seems that large numbers of pre-service primary teachers will continue to need to be persuaded of the value of geography and its teaching during their course, a key challenge for geography tutors.

Primary pre-service teachers' understanding of geography

There is limited knowledge about the geographical understanding of England's future primary teachers. This section draws on previous studies which provide some insight. Research undertaken with pre-service teachers prior to their ITE geography component indicate their residual school and, for a few, graduate sense of geography (Catling, 2004b, 2014; Morley, 2012). Prospective primary teachers' general appreciation of geography is information-oriented, about 'world knowledge' and human and physical processes. Their locational and world map knowledge generally appears weak, except where personally relevant. Levels of understanding in human and physical geography appear problematic for many. There are weaknesses in their knowledge of geographical and geological concepts, such as what is meant by 'environment', spatial distribution and spatial pattern, climate change and global warming, river and earthquake processes, and deep time, though they may not be unaware of these terms and of others. More than half seem informed about and have concerns for environmental quality, though they do not readily associate this with geography. Many seem not to recognise their own misconceptions and misunderstandings and rarely tackle these unless seen to be directly relevant. Pre-service teachers appear little motivated to acquaint themselves with their placement school neighbourhoods, thus missing local opportunities and connections for pupils when teaching geography. Tutors sense of pre-service teachers' weak subject knowledge (Table 4) deepened tutors' concerns about the extent to which they will be able to apply geographical understanding in their teaching.

A review of research into pre-service primary teachers' geographical knowledge and understanding drawn from a good range of international sources (Catling, 2014) identified shortcomings underpinning geography teaching. It would seem likely that these findings might apply in England, as elsewhere. Many future primary teachers appreciate geographical learning is important, but their commitment to the subject is influenced by geography's status in their national education system, such as in Australia, Ireland and Lebanon. They feel that primary pupils should understand the various aspects of geography, including environmental values. Yet many say they lack the confidence to teach geography well and find planning a challenge because of their limited subject knowledge, as in the USA (Thomas-Brown & Richards, 2015).

Little is known about pre-service primary teachers' knowledge of much of the geography they might teach and the understanding that the subject promotes. This includes the impact which geography components in ITE courses have on pre-service teachers' geographical understanding. Many aspects remain under- or un-researched,

such as their knowledge of mountains, urban environments and spatial and mapping skills, as well as their school backgrounds and daily experiences, the impact of social learning and digital media on their geographical understanding, how and why they teach geography in the ways that they do, and the subject expectations they hold of themselves. This lack of understanding of primary pre-service teachers' knowledge and needs may be an inhibiting factor for geography tutors, who remain unclear about the key topics to focus on with their prospective teachers

It seems that the challenges go deeper than this. Martin (2006, 2008) identified that primary pre-service teachers hold informal or *everyday* notions of geography, but that they do not draw on this understanding for their primary geography teaching, because they do not notice the connection. She noted dissonance between their everyday geography and the school geography they 'knew' (though what they 'know' may be problematic). Martin found that her PGCE pre-service primary teachers fell back on their school-learned geography and made little use of learning from their ITE geography sessions during their teaching placements and into their first year of teaching. She noted the constrained opportunities in primary ITE in the mid-2000s to develop pre-service teachers' knowledge of primary geography content. She proposed that their everyday geographies could be the basis for developing and applying their geographical awareness in their teaching. Given the limitations in geography provision identified by the mid-2010s, it seems that for many pre-service primary teachers' geographical understanding remains limited for teaching primary pupils even if and when their everyday geographies might be drawn upon. Geographical understanding needs to be developed during ITE courses, though this seems problematic to achieve.

The ITE primary geography curriculum

According to geography tutors, it is rarely possible to develop in pre-service primary teachers more than a limited appreciation of England's national curriculum geography content (Table 5). The curriculum in primary ITE geography components was reported usually to cover the nature of geography, primary curriculum requirements, teaching about local and distant places, fieldwork and enquiry approaches, and map work. Not all of these aspects were included where time was limited. It was rare to find a wider range of geography covered since this depended on enhanced teaching hours and sessions. Topics such as everyday geographies, thematic elements of human and physical geography, environmental change and sustainability, and global dimensions were often missing. Session content, some tutors reported, provided only limited help to those disinterested in geography, while being little more than a signpost to those holding any geography qualification.

Geography tutors included their content for various reasons (Table 5). They wished to emphasise what geography is about and its value, to meet what is required in the curriculum as expected by local schools, and to tackle aspects they considered essential, such as teaching about distant places which linked to challenging pupils' – and pre-service teachers' – misconceptions and stereotyping. Course context would influence content and teaching, for example when the subject lay within a cross-subject module such as on creative learning with drama and music, as one tutor stated. However, rarely was the geography component more than an introduction to primary geography. Tutors indicated that in reality there was little time for them to become

informed about or tackle pre-service teachers' geographical misconceptions or knowledge limitations.

Survey topics	Responses	N=10 (PGCE=10; UG=8)
What are the key aspects of geography which you include in the geography unit(s)?	<ul style="list-style-type: none"> • Nature of geography, key ideas of geography (including place, space, environment) 7 • Geographic skills including enquiry, maps and fieldwork 10 • Overview of national curriculum geography structure and content 10 • Selected aspects of national curriculum content 10 • Local area study 7 • Distant places 8 • Global dimension 3 • Environmental sustainability 3 • Physical and human geography processes 4 • Pedagogy and planning of geography teaching 6 	
Why are these aspects of geography included, and is it the intention to develop pre-service teachers' geographical understanding?	<ul style="list-style-type: none"> • Interesting, enthusing and building confidence of pre-service teachers 10 • Developing (to a limited extent) pre-service teachers' understanding of geography 9 • Value of and valuing geography 8 • Meeting what local schools require 8 • Tackling pre-service teachers' misunderstandings and stereotypes affecting geographical understanding 6 • Developing pre-service teachers' understanding of geography 6 • Providing pre-service teachers' with the basics to teach geography 4 • The extent to which tutors felt able to develop pre-service teachers' geographical understanding: <ul style="list-style-type: none"> Effectively 1 To an extent 6 Very limited 2 Negligibly 1 	
Is there assessment of pre-service teachers' learning in geography and, if so, how?	<ul style="list-style-type: none"> • UG Yes: <ul style="list-style-type: none"> Geography only assignment 2 Linked assignment with other Foundation subjects 3 Students opt into taking geography in an assignment 3 • PGCE Yes: <ul style="list-style-type: none"> Required integrated Foundation subject assignment 1 Optional Foundation subject assignment 1 • No 8 	
What are the key aspects in your approach to teaching your geography unit(s)?	<ul style="list-style-type: none"> • Encourage pre-service teachers to share own understandings and to help each other 7 • Taking opportunities to tackle misconceptions and stereotypes where arose 6 	

	<ul style="list-style-type: none"> • Access to good geography resources for teaching 	6
	<ul style="list-style-type: none"> • Active, experiential, practical and investigative approaches to show vitality of geography, including enquiry and fieldwork 	5
	<ul style="list-style-type: none"> • Balance of tutor and group-led studies 	4
	<ul style="list-style-type: none"> • Opportunities to develop an appreciation of good geography resources 	3
	<ul style="list-style-type: none"> • Linking children's and adults' personal geographies, connected to research interests 	2
	<ul style="list-style-type: none"> • Engaging pre-service teachers through planning teaching activities and sets of lessons 	2

Table 5: 2014 sample survey: Geography unit content and assessment

Teaching resources for primary ITE geography varied from being well supplied to limited. Given low, even intermittent, resource funding, concern existed about access to good quality resources for teaching on campus and in schools but generally there was effective access to good teaching resources (Table 5), such as through the GA and other pertinent websites. Several tutors noted that geography sessions lacked time to examine effectively criteria for selecting good quality geography resources, resulting in pre-service teachers developing a limited sense of good print and digital geography materials. Advice to pre-service teachers to select resources diligently requires a clear understanding of geography and its teaching with primary pupils and the capability to consider carefully the nature, value, role and appropriate uses of resources. It seems increasingly that this is becoming difficult to convey in primary ITE courses.

Survey Topic	Response	% (N=34)
Is there time for fieldwork in the primary PGCE geography unit?	• Fieldwork provided	42%
	• No fieldwork provided	29%
	• No information given	29%

Table 6: Data from the 2013 survey of geography in PGCE courses: Fieldwork provision

Primary geography tutors reported working hard to foster pre-service teachers' positive attitudes to geography and to encourage them to see it as a stimulating subject for primary pupils. They aspired to helping them realise that geography is a valuable subject in primary pupils' education and an engaging enquiry-based subject to teach. The desire to enthuse pre-service teachers was about building confidence for teaching. Fieldwork was valued (Table 5) for developing pre-service teachers' geographical understanding and motivation and in encouraging active approaches in geographical learning, but doing fieldwork was a challenge (Table 6). Feedback from tutors indicated that undertaking fieldwork within geography sessions, even on campus, was often inhibited by time and access. Some tutors also noted that enquiry approaches through small-scale investigations by students was difficult to implement where unsupported by directed study time. This inhibited investigative learning, which was seen as essential in fostering good quality geographical understanding (Jackson,

2006). However, pre-service teachers were responsive to active, enquiry-based and fieldwork teaching approaches when these happened since these helped them to perceive links between themselves and the subject (Catling, 2014). Tutors reported that evaluations of their teaching indicated some success here, even in limited time, but they remained concerned about the challenge of implementation.

Where there was allocated time for UG pre-service teachers' independent study this could include an assessment task, though it was rare on a PGCE course (Table 5). Geography was a requirement in most primary UG humanities assignments, either interconnected with other subjects or as a short stand-alone subject assessment. This was unlikely to happen more than once in an ITE course. In a few UG courses geography assessment was optional. Assignments could require a poster or an essay on aspects of teaching geography or a rationale for and set of geography lesson plans. In most cases the assignment contributed within a UG module to a student's degree and teaching qualification.

Studies undertaken in The Netherlands, Turkey and the USA with pre-service UG primary teachers on the effects of specialists' geography topics indicate that such modules can inform and enhance their scientific and geographical knowledge and understanding (Blankman et al., 2016; Çokadar, 2013; Jo & Bednarz, 2014; Lambert, Lindfren & Bleicher, 2012). During module or workshop sessions with or without follow-up study, and/or teaching in school, pre-service primary teachers appeared to develop an improved conceptual appreciation of geography topics, such as of core subject concepts, climate change, or spatial thinking, and were in a better informed position to teach these. Yet such studies also showed that a single focused module or workshop did not necessarily overcome pre-service teachers' subject or topic confusions, ignorance and alternative conceptions; indeed, these were only moderately improved among many pre-service teachers, at least in the short-term, and some misunderstandings seemed likely to persist. It appears that a single, one-off focused UG geography or science knowledge or teaching module may not develop the depth needed for thoughtful geographic and scientific understanding. This would indicate that in England providing a full geography module for generalist pre-service primary teachers, even in a UG course, may only be minimally helpful. In current circumstances this is probably impractical to implement given the demands on course time of the number of curriculum subjects in primary ITE courses. This adds another challenge to fostering pre-service primary teachers' good geography teaching.

These challenges affect improving pre-service teachers' geographical understanding and application in teaching. They inhibit addressing England's school and teacher education inspectorate's concern that many primary teachers' have overly limited geography subject knowledge (Ofsted, 2011), which the *Teachers' Standards* (DfE, 2012) identify as required for high quality subject teaching. Without the time to do more than introduce geography's curriculum and some approaches to its early years and primary teaching, it seems rarely possible to tackle pre-service teachers' geographical misunderstandings, alternative conceptions and knowledge gaps – a challenge that England's *Carter Review* (Carter, 2015) set. Nor is it often possible to provide good investigative experiences using geographical information, concepts and skills to develop their geographical knowledge and enquiry skills to enhance their sense of the subject and capacity to teach it thoughtfully, engagingly and with high

expectations. Such competencies are essential to achieving primary pupils' development in geographical knowledge and thinking.

Pre-service teachers and geography teaching in primary schools

Tutors report limited opportunities for pre-service primary teachers to observe geography teaching in classrooms (Table 7). Some pre-service teachers never see geography lessons, while others observe just one or two lessons of variable quality. Some have opportunities to teach geography, but often with negligible or limited guidance from their class teacher or the school's geography subject leader, tutors reported. Where there is an opportunity it may be within a cross-curricular rather than a geography subject context. Some tutors noted that pre-service teachers are likely to be given a pre-structured topic to plan into lessons or a set of pre-planned lessons. Support for planning or encouragement to adapt lesson plans can be lacking, except where high quality geography teaching is an aspect of the school's expectations. It was rare that account was taken of school-based geography teaching in assessment unless, unusually, a lesson might have been included for this purpose. While there appeared to be limited opportunities in UG courses to judge ways in which pre-service teachers considered and reflected on geography teaching, such as in a written assignment, they were virtually nonexistent in PGCE courses beyond discussions in campus sessions.

Survey topics	Responses	N=10 (PGCE=10; UG=8)
Is it possible to make school placement links to the geography units?	<ul style="list-style-type: none"> • No • Doubtful/rare • Occasionally • Yes 	4 1 2 3
Are pre-service teachers likely to see geography taught in their placement primary schools?	<ul style="list-style-type: none"> • Yes, on a least one placement • Possibly, depending on placements • For some, not all • No 	4 1 2 3
Are pre-service teachers likely to be able to teach geography during at least one school placement?	<ul style="list-style-type: none"> • Yes, on at least one placement • Possibly, depending on placements • Doubtful for the majority • Very unlikely 	1 6 2 1
What is your perception of the quality of geography teaching by teachers in placement primary schools?	<ul style="list-style-type: none"> • Increasing number of schools where good geography exists • May be effective in cross-curricular topics • Highly variable • Very patchy, often weak and/or little evidence taught 	3 2 2 3

Table 7: 2014 sample survey: Pre-service teachers' opportunities to teach geography in primary schools

Ofsted (2008, 2011; Iwaskow, 2013a, 2013b) has stated that only about half of geography teaching and learning in England's primary schools is at least of 'good quality' – though better for younger than older primary pupils. In particular, Ofsted

has noted, many primary teachers lack the levels of geographical knowledge which support teaching the subject well. Ofsted has identified major concerns about the quality of geography leadership in primary schools, where far too few geography co-ordinators are rated as good or better. This undermines development of the subject in primary schools. Weak confidence leads to low expectations of pupils' geographical learning, and many teachers lack confidence when teaching geography. The impact is that many primary teachers seem unlikely to provide pre-service teachers with observable good quality geography teaching or the support in school to think carefully about their geography teaching, whether about content, planning or ways in which activities are best taught. In some primary schools the full range of geography is not taught and progress in pupils' understanding and application of geographical ideas, concepts and themes remains undeveloped. Much primary teaching focuses on geographical skills and information, rather than knowledge and understanding. Ofsted indicates that this is compounded as teachers have lost their skills as curriculum makers because they use pre-structured geography topics and lesson plans and undemanding resources, often containing repetitive and unimaginative tasks. Effectively, many are not required to plan thoughtfully and knowledgeably for their geography teaching. Such deskilling indicates that many primary teachers lack both the depth of understanding of geography and confidence in its teaching to support effectively pre-service teachers during school placements.

This perspective was reinforced by primary geography tutors, who indicated that at best the quality of geography teaching across the range of schools used for placements by their ITE courses was of very mixed quality (Table 7). While too few schools were noted to provide examples of effective and good geography teaching, many tutors regarded placement schools as weak or as avoiding geography teaching. Such circumstances let down pre-service teachers and present challenges to developing their teaching of geography.

In summary

Many elements in university primary ITE courses contribute to pre-service teachers' knowledge and understanding to teach England's primary school curriculum. Course structures, time allocations and school teaching opportunities lie beyond the control of individual tutors of any single subject who have to work in the context they are given, a situation which seems not unique to the UK. A major concern is the level and quality of the geographical understanding of many pre-service primary teachers in England and elsewhere (Catling, 2014). The evidence of need and the advocacy for increased subject knowledge and subject specific teaching in ITE in England presents a clear challenge to geography tutors. Time in primary ITE for geography is short, though it varies between universities and is higher in UG than PGCE courses; it contracted considerably between 2004 and 2014, a situation which, anecdotally, appears consistent across subjects; it may also be problematic elsewhere in the world. Geography tutors state that it is challenging for them to address pre-service teachers' needs in their geographical learning and understanding. Geography sessions can do little more than introduce prospective teachers to the primary geography requirements, a range of suitable teaching approaches and some appropriate resources for geography teaching. What is covered depends on limited teaching contact time and variable independent study opportunities. However hard they might try, even well informed and motivated prospective primary teachers are likely to lack the time

to enhance their geographical knowledge and teaching skills. A recent study of the state of physical education [PE] in primary ITE found a comparably low level of teaching time alongside limited opportunities to teach PE effectively in primary schools (Randall, Richardson, Swaithes & Adams, 2016). It seems that similar concerns affect other non-core subjects in primary ITE. A conclusion must be that it is optimistic to develop pre-service primary teachers' geographical understanding and teaching to any real extent during their university ITE courses. This may well be a situation which other nations face in preparing their pre-service primary teachers to teach geography.

It is likely that there is much good practice in England's primary ITE geography, but next to nothing is known about such teaching since there is no research into the planning of ITE geography sessions or about how they are taught. Indeed, there is little research reported globally (Blankman et al., 2016; Preston et al., 2015), and there has been just one study of pre-service primary teachers experience of geography during school placements, across Ireland and Northern Ireland (Waldron et al., 2009). England's Ofsted inspections of primary ITE – examining course quality, management and partnerships alongside pre-service teachers' knowledge and classroom competence – have focused primarily on the subject knowledge and teaching quality of English and mathematics and on behaviour management and classroom expectations; rarely has it looked across the curriculum (Ofsted, 2015a), leaving geography and other non-core subjects neglected.

Moving forward: setting expectations

To improve primary pupils' geographical learning, raising expectations of high quality geographical understanding and teaching by pre-service primary teachers is essential. The Geographical Association, the leading UK teachers' organisation for geography teaching, has worked to identify and express the characteristics of and criteria for high quality geography in primary ITE (GA, 2017). The GA has taken account of the *Carter Review* of ITE (Carter, 2015), the *Munday Report* on core ITE content (Munday, 2016) and other sources, including England's *Teaching Standards* (DfE, 2013b; NCTL, 2013b) and Ofsted's high expectations about primary schools' and pupils' geographical provision, teaching, learning and achievements (Ofsted, 2011), to create and develop guidance for prospective primary teachers' geography subject knowledge and subject specific teaching. The argument for producing this guidance is that high quality subject provision for pre-service primary teachers, whether university-led or school-led, is essential to enable them to develop their pupils' knowledge and understanding. The GA's specification provides a checklist for minimum standards in geography in ITE courses for pre-service primary teachers' learning.

The guidance does not state expected hours for teaching contact time or independent study for the geography component in a primary ITE course on the grounds that this must be determined by providers who intend to meet the GA's criteria and expectations. The guidelines for ITE geography components outlined in the next two paragraphs indicate what prospective primary teachers need to develop their geography teaching capabilities (Rawding & Tapsfield, 2016) but, deliberately, they

are constrained from providing greater detail because of the current and expected realities and to enable interpretation and decisions by universities and schools.

The expectations of pre-service teachers' are that they:

- demonstrate commitment to and enjoyment of the subject and that they value younger pupils' potential for learning geography;
- develop a secure understanding of geography to underpin their teaching;
- have a sound sense of curriculum requirements for 3 to 11/12 year olds;
- appreciate geography's contribution to personal, social and citizenship education and to understanding environmental and topical matters;
- understand elements of younger pupils' geographical experience, thinking and learning;
- can plan creative and rigorous geography teaching and learning experiences to inspire and motivate pupils, including through fieldwork and enquiry approaches, in subject and cross-curricular contexts.
- have a repertoire of teaching approaches, and can use a variety of resources, to enable pupils to make progress in their geographical learning;
- assess pupils' needs, learning and achievements well to support pupils' progression;
- know about accessing subject associations' and other organisations' support for teaching and professional development.

To enable pre-service teachers to meet these expectations, primary ITE geography teaching needs to be undertaken by an informed and knowledgeable geography enthusiast who is accessible for advice and who can provide support for primary school geography mentors and pre-service teachers. The geography content must introduce prospective teachers to the importance and nature of geography and its primary curriculum requirements and develop their knowledge of location and place studies and a range of the human and physical aspects of geography. Tutors should use enquiry approaches and fieldwork, and examine the effective selection and use of a variety of good quality resources for geography teaching in subject and cross-curricular contexts. Pre-service primary teachers should encounter geography's contribution to pupils' social, cultural, spiritual and moral understanding and examine the teaching of controversial subject issues. There must be opportunities to observe good geography lessons, examine practices which support pupils' learning progression, plan for teaching well-structured geography and be able to make informed and development-based assessments of children's progress. Pre-service teachers' appreciation and knowledge of geographical learning and teaching must be assessed (GA, 2017).

These expectations and specifications are demanding, given the evidence and critique presented above. For instance, it is likely that very many ITE geography tutors will find it hard to meet all the requirements in the average or less teaching time that is currently allocated, especially if they are not a specialist primary geographer. This would seem to be a core challenge for HEI and school-led primary ITE geography. It might be argued, therefore, that there should be a minimum ITE teaching and independent study time specified; yet this might set a criterion which most ITE provision, in present circumstances, would be unlikely, possibly unable, to meet. Yet it could be that setting a minimum course requirement time is necessary to encourage, even press, providers, be they schools or universities, to take seriously the need for

pre-service teacher development in geography and other non-core curriculum subjects. Perhaps it requires the government to set a national requirement. It will be problematic for university-led courses to enable pre-service teachers to observe good primary geography during placements and to receive informed advice about their teaching if there is not a well-informed and knowledgeable geography subject leader and mentor in the school and good quality geography teaching throughout the primary school. To require this presumes that schools will and can respond; at present in many schools this may not be possible. It means, then, that recordings of high quality primary geography teaching will be required for use in pre-service units. It might be hoped that over time these criteria and expectations for geography encourage all HEIs and primary schools involved in ITE partnerships to provide high quality teaching in each primary subject, something which is not currently evident. The GA's guidance might also be a model for ITE courses elsewhere in the world to address and adapt to their own needs.

Setting rigorous expectations for ITE is essential for the standards expected of and by pre-service primary teachers to be met for the best interests of primary pupils (DfE, 2012; NCTL, 2013b). To dilute them would undermine the importance of striving for clear subject-focused expectations and guidance for primary ITE, whether in universities or schools. To aim for less would be to undervalue geography in primary education. Examples of suitable high quality geography ITE content and practice are essential to support such specifications and will need to be available from the GA and other sources. The challenge is whether what is set out is realistic and achievable, given the focus on core subject teaching, classroom management, special needs and pupils' behaviour in primary ITE courses. This is a matter for university and school ITE partnerships which demands urgent consideration and response. To meet government requirements for primary schools and pupils it will involve some rebalancing in primary ITE provision to support effectively curriculum subjects like geography (DfE, 2016; Ofsted, 2015b).

Conclusion: Challenges facing geography for primary generalists

Even noting the contexts, expectations and concerns presented above, the challenges facing geography in university primary ITE courses leave a sense of doubt about the commitment to improvement. This is likely to be familiar globally, and geography as a subject is not alone in this. England's geography education tutors have indicated that the situation for geography is comparable in other non-core ITE subjects, aware that the subjects of English, mathematics and science are those which are deemed really to matter, a point reinforced in evidence to the House of Commons Education Committee about primary ITE and in-service teacher development (House of Commons, 2016) and in discussions of issues affecting the education of pre-service teachers in various subjects for a number of years (McCreery, 2005; Kirk, 2012; Welsh & Henley, 2014; Randall, Richardson, Swaites & Adams, 2016), and not only in the UK (Garvis & Riek, 2010; House of Commons, 2016). With the decline of university-led courses and increasing school provided ITE, it appears unlikely that additional time for geography will be available; if anything, geography education tutors fear that teaching time may reduce further. This situation could be compounded by a decline in the appointment of specialist primary geography tutors, whether full- or part-time, affecting pre-service teachers' access to expertise to foster

their geography teaching knowledge and skills. The effect would be that the teaching of geography content may not be consistently of the highest quality nor use made of opportunities and possibilities to enhance it through engaging and innovative teaching. Though assessment may remain for some, it might not become more rigorous and insightful to engage pre-service teachers in meeting enhanced subject expectations and standards. While geography in England has picked up pupil numbers taking its sixteen plus examination³ as a result of the promotion of the EBacc,⁴ it remains unclear that this enhances the quality of their geographical understanding, nor how it will affect those who enter primary ITE as undergraduates or graduates in the future. Levels of geographical understanding may improve, but this will not be known for some years. Such circumstances may well not be unfamiliar to geography education tutors and others elsewhere.

Though there is renewed pressure on England's primary schools to teach the full range of subjects effectively following revisions to national school inspection requirements (Ofsted, 2015a, 2015b), the teaching force in primary schools is only changing incrementally. There must be doubt that many primary teachers will have improved their confidence and skills to support and develop geographical understanding and teaching capability in pre-service teachers, even in designated teaching schools. Professional development courses, while desired and helpful, can aid improvement but often are not accessible to many primary subject leaders for practical and financial reasons. The outcome seems likely to be that there will be little or no improved status for geography in primary ITE, consequently inhibiting pre-service teachers' expectations for themselves and pupils. Though many high quality geography education tutors will continue to tackle these circumstances – and no doubt have a positive impact – it seems likely that there will be a shortfall to the expectation that primary pupils deserve and are entitled to high quality geography teaching by knowledgeable, enthusiastic and committed teachers of primary geography, and that primary ITE courses will lack time to develop them.

Notwithstanding this conclusion, there remains a real need for further research into the provision and teaching of geography in England's university and school provided primary ITE, and across the world. There is much that is only partially understood, especially about the teaching of geography to pre-service teachers by geography tutors and subject leaders. This requires studies of such matters as ITE tutors' intentions in teaching primary geography; decisions about and planning for geography component content, teaching activities and resources; the engagement of pre-service teachers in and the impacts on their learning and attitudes of ITE geography sessions; and assessment processes and effects. Further investigation is needed of the geographical knowledge, understanding, skills, attitudes and values of newly qualified primary teachers as they enter the profession to discern their learning from their course and its application in their geography teaching as they start their careers. Research is required with primary ITE providers about their perspectives on geography provision and what informs and influences their decisions about what they provide. Such studies would deepen insight into the nature and quality of the teaching and learning of geography in ITE, which may challenge or reinforce some or much of the evidence presented above and which will fill in the gaps. It should be the basis for future developments for geography in primary ITE whether led by schools or universities. Research is needed in those countries where geography features as a named subject or a contributory subject to the social studies or natural sciences

curriculum, to establish, clarify and offer a basis for the subject's development and enhancement in primary ITE and schooling. Undertaking and sharing the outcomes from such research internationally would enable progress in addressing the challenges primary geography education tutors face.

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Notes

¹ The 2016-17 primary ITE recruitment national thresholds were allocated to reverse the provider balance of the 2015-16 intake, with 57% to be recruited to school-led routes and 43% to higher education courses (NCTL, 2015). The focus of pre-service primary teacher education is being determinedly shifted into schools.

² The General Certificate in Secondary Education [GCSE] is normally taken at fifteen or sixteen years old after two years of study in secondary education.

³ The number of Geography GCSE entrants increased by a fifth between 2011 and 2015 (www.jcq.org.uk/examination-results/gcses).

⁴ The EBacc (DfE, 2015) was initiated in 2010 and became compulsory for all pupils entering secondary schools in England from September 2015. This entry cohort will start their GCSE course in 2018 and take the examination in 2020. The EBacc consists of the following subjects: English, mathematics, geography or history, the sciences and a language. To achieve the EBacc pupils must obtain a C or better grade in all of these subjects.