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Research Article

The Importance of Connecting Young People, School Geography and Future Careers in Secondary Education

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Abstract: Schools and further education colleges worldwide are increasingly integrating career education into school subjects to raise career awareness, help young people develop the essential knowledge and skills needed to thrive in the workplace and support decision-making about their future education and work choices. Drawing on a mixed-methods study in a multi-academy trust in England, this article considers how geography teachers can meaningfully embed careers education into the school geography curriculum with the support of professional geographers and their real-world knowledge and skills. Findings from a survey (n=439) and interviews with geography teachers and students who visited a major infrastructure project as part of a school-industry partnership (n=22), indicate that immersive learning opportunities in the real-world can develop a deep understanding of contemporary geographical case studies and help young people to make connections between the geography curriculum and geography-oriented careers. The article concludes that school–industry partnerships can empower teachers to deliver high-quality geographical education by combining powerful (disciplinary) knowledge with contemporary real-world insights. These collaborations help young people develop the ability to think geographically, enabling them to better understand our changing world, make informed decisions about their future careers and have the opportunity to engage meaningfully with geography's transformative potential.

Keywords: geography education; professional geographers; career-oriented geography; localised curriculum

Highlights:

- The geography curriculum is static, yet the world it seeks to explain is rapidly changing.
- This disconnect can limit students' ability to engage with contemporary geographies.
- School-industry partnerships help connect powerful knowledge with real-world insights.

1. Introduction

Following the Education Act 2022, the Government's careers strategy and statutory guidance, states that all schools and further education colleges in England are required to provide high-quality career education and guidance for young people (11-18) to support them in choosing their career pathways and prepare them for the workplace (DfE, 2025a). Introduced in 2014 and updated a decade later, the Gatsby framework for world-class careers education (Gatsby, 2024) is used by most schools and colleges to measure their careers provision. To achieve Benchmark 4 and 5, an education provider must link curriculum learning to careers and provide encounters with employers and employees to raise young

peoples' awareness of future careers and improve employment rates (DfE, 2025a; Gatsby, 2024; HM Government, 2024). In school geography, this involves linking careers to a curriculum that aims to develop students' locational knowledge, understanding of physical and human processes, spatial and analytical thinking, and the application of geographical skills to make sense of issues from local to global scales (DfE, 2013). Geography teachers and leaders have interpreted and enacted the guidance in numerous ways. In a *Teaching Geography* article, Hesslewood (2023) detailed how his geography department redesigned its curriculum to integrate careers education across the 11–18 age range. This included inviting guest speakers with geography-related roles (e.g. transport planner or geospatial engineer) from local companies and encouraging students to explore geography-related careers within relevant curriculum topics.

This article reports on a research–practice project designed to engage young people with a nationally significant infrastructure project, to connect geography and career education and deepen students' understanding of curriculum content through first-hand experience of a real-world case study. We focus on the experiences of 11-18-year-old geography students and their teachers to explore the geographical knowledge and skills that are developed through industry partnerships experienced firsthand through local field visits to High Speed 2 (HS2; a high-speed railway line between London and Birmingham that is currently under construction). The mixed methods study draws on a survey of 439 students (to understand current perspectives on geography education), focus groups with 22 students from a multi-academy trust (MAT) in England (to hear their reflections on the field visits) along with interview data from the lead teacher of the curriculum development project (to hear their insight on the project and its educational benefits). In the next section, we explore why it is essential to connect young people with powerful (disciplinary and professional) geography knowledge, and how careers and geography education can build on this foundation to develop the skills they need for future success. Following this, we outline the research design and discuss the benefits afforded to students and teachers involved in industry-school partnerships during their career and geography education. Our findings recognise the value of connecting the curriculum to geography-oriented professionals, as it improves the quality and purposefulness of school geography, while preparing young people with some of the knowledge and skills needed for their future careers.

2. Literature Review: Young people, geography knowledge and future careers

2.1. Connecting young people with disciplinary and professional geography knowledge

For a school geography curriculum to be valuable, it must be grounded in geography's key concepts. This foundation enables young people to make sense of our rapidly changing world, relate learning to their everyday experiences, and develop the critical thinking and global citizenship skills essential for the future (Krause et al., 2025). Furthermore, as geography is inherently world-oriented (seeking an understanding of the world and its human and physical complexities), the curriculum needs to maintain strong links with real-world geographies, geographers and geospatial data, enabling students to make connections with and understand their own locality and the contemporary natural and social world in which they live (Holloway & Hubbard, 2014; IPCC, 2022).

One way to achieve this is through industry-school partnerships which support geography teachers to integrate abstract powerful disciplinary knowledge with dynamic industry-based knowledge, skills and practices to deepen students' conceptual understanding and apply their learning in unfamiliar contexts. Yet, there is limited research exploring such a liberatory curriculum and the benefits to young people and their future lives. An exception is the Powerful Geography project led by Michael Solem and inspired by the GeoCapabilities project, of which he led the pilot (Solem, Lambert & Tani, 2013). The Powerful Geography approach to teaching and learning starts by asking students about their career aspirations and attitudes, before creating and teaching with educational resources that draw on the geographical knowledge and skills of professionals that have jobs related to geography (Boehm, Zadrozny & Blanchard, 2024). As part of an international Powerful Geography project, Rawlings Smith and Collins (2024) recognised that teachers often rely on established, trusted geography case studies, typically those found in textbooks, rather than selecting examples that are of most relevance to young peoples' local contexts, interests, or future career aspirations. This choice is often made to develop core subject knowledge and secure strong exam outcomes but as Young and Muller (2010) articulate, prescriptive content-based curricula are too rigid to keep up with advances in knowledge. This is why we advocate for a concept-based liberatory curriculum (Null, 2017), which combines different types of knowledge to foster geographical thinking, questioning and debate as students engage with powerful disciplinary knowledge through local developments in dialogue with industry experts (Béneker & van der Vaart, 2020; Solem, Lambert & Tani, 2013).

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In other areas of geography education, such as Geography Information Systems (GIS), geography educators have leveraged industry partnerships to engage students with the use of GIS and support access to data at a local scale. For example, in Singapore, industry professionals supported students to engage with community issues (Liu, Tan & Xiang, 2012). In Tasmania, students developed GIS skills through working in partnership with professionals on coastal management projects (Kinniburgh, 2012). Through a small-scale case study in England, Healy and Walshe (2020) found that engaging with industry professionals aided A-level (16-18-year-olds) students' understanding of real-world applications of GIS and served as an inspiration, which played a direct and indirect role in the development of students' geographical knowledge.

2.2. Knowledge and skills development in careers and geography education

Schools and colleges play a central role in supporting young people's transition from education to employment. In 2024, the Labour government committed to strengthening careers provision by recruiting 1,000 additional careers advisers, with the aim of delivering locally responsive guidance and fostering stronger partnerships between schools, colleges, and local employers (HM Government, 2024). For young people to gain employment, they need to first learn about the entry requirements, career paths and possibilities available, before developing their own career aspirations that ideally align with the knowledge and skills developed in education and their personal interests and values. By situating local industry and vocational engagement within the geography curriculum's disciplinary framework, students' disciplinary knowledge is enriched, showing that real-world projects can reinforce the geography curriculum (Boehm, Zadrozny & Blanchard, 2024). Although there is a potential risk that vocational or local experiences might over-socialise students toward particular careers, the curriculum design work ensures these experiences are framed by geographical enquiry, enabling students to critically engage with local projects.

A national survey of school students in England found that only 31% of young people consider that learning about climate change and sustainability will provide them with more job opportunities and only 17% have an interest in working in a job related to climate change and sustainability (Walshe et al., 2024). While a YouGov survey commissioned by the Geographical Association in June 2024 found that '70% of adults agree that young people need to study geography to prepare them with the skills and knowledge needed to work in "green jobs"' (Brace, 2024, n.p.). Evidently, there is a gap between the knowledge and skills young people and adults think are needed (e.g. sustainability and climate change knowledge, problem-solving and geospatial skills) in preparation for the workplace. If left unaddressed, this gap is likely to widen as the UK's commitment to achieving net zero by 2050 demands the greening of the entire workforce, not just green jobs that 'preserve or restore the environment' (National Careers Service, n.d.). This will require widespread reskilling and the adoption of new green technologies to decarbonise the economy, tackle climate change, and protect the living world (HM Government, 2023). This universal greening will require all children and young people to be taught green knowledge, skills and values. Geography, as the discipline that bridges the physical and human world (Cresswell, 2024), is well placed to be one of the school subjects through which this is taught.

In recent years, government and industry have both recognised the importance of green skills, driven in part by the wider green transition towards a sustainable future economy. However, progress in upskilling the future workforce with specific technical, practical, and sector-related skills has been slow, hindered by the covid-19 pandemic, geopolitical instability and the transition to a new Labour government (HM Government, 2024; Kwauk & Casey, 2021). Compounding this situation is a mismatch between the essential skills employers demand and those cultivated within education (HM Government, 2025) and a lack of consensus on how to define or identify green skills (Khanom et al., 2025). Green skills can be defined as 'the knowledge, abilities, values and attitudes needed to live in, develop and support a society which reduces the impact of human activity on the environment' (Simmonds & Lally, 2024, p. 1). A broader definition encompasses sustainability skills which enable students to understand, evaluate, and act on the social, economic, and environmental dimensions of sustainability, including efforts to address social and environmental injustice. These transversal skills span systems thinking, environmental stewardship, and political agency (Kwauk & Casey, 2021). However defined, the demand for green skills will soon outstrip supply (Simmonds & Lally, 2024) and this shortfall or green skills gap will be a significant challenge for countries wanting to make global progress toward the 2030 Agenda for Sustainable Development (UN, 2025) or meet Net Zero targets by 2050 (HM Government, 2025). The Skills Imperative programme (Bocock, Scott & Hillary, 2025) estimates that 7 million workers across the UK will not have the essential employment skills needed to thrive in 2035, therefore 'systematic change is needed to impact young people's choices and skill development throughout their journey through education' (p.8). With curriculum reform underway in England

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(DfE, 2025b), now is the time for schools and teachers to reassess their provision to ensure that powerful (geography) knowledge and skills form the foundation of their future geography curriculum.

3. Research design

The aim of this small-scale practitioner research was to: (1) determine the career aspirations of 11-18-year-old students within a MAT, (2) devise curriculum experiences that integrated career and geography education, while providing opportunities to interact with professional geographers working on real-world projects, and (3) gain insight into students' curriculum experiences and teachers' reflections on the curriculum developments. Consequently, the overarching research question asked, 'How can we support young people to make sense of local geographies and future careers?' To answer this question, research data was gathered from three sources: (1) 439 responses to a career aspiration survey by 14-16 geography students from three schools, (2) focus groups with 22 geography students who had participated in the career-oriented curriculum experiences from one school, and (3) two interviews with the organising teacher. Prior to data collection, institutional ethical approval was granted (Ref: 88730, 20/10/2023).

3.1. Data collection

An online survey was developed to explore students' perceptions of school geography, the value they attribute to geographical knowledge and skills, their curricular interests, and their career aspirations. Survey data were generated through open-ended questions, complemented by Likert-scale items to explore the relative salience of key disciplinary constructs. Quality assurance and validity were supported through the use of an established survey instrument grounded in career aspiration theory (Larsen et al., 2022), adapted for the UK context (Rawlings Smith & Collins, 2024), with content validity strengthened through expert review by the author team. The survey was hosted on Microsoft Forms, within the MAT's IT environment for reasons of safeguarding and data protection, with data collected between 1 April and 29 May 2024. Completing the survey was voluntary; students were invited to participate by their geography teachers. The 439 students included 261 year 9, 139 year 10 and 39 year 11 students. The 14-16 age group was selected as they are considered mature enough to make an informed decision about whether to participate after reading the participant information and asking questions.

To examine teacher and student perspectives of the two HS2 experiences, two interviews were undertaken with the lead geography teacher after each experience (Interview 1: June 2025; Interview 2; October 2025). Data were also collected from a sample of students who had engaged in the curriculum experiences designed to bridge career and geography education by connecting them with real-world geographers working in the local community, on the HS2 national infrastructure project (see Table 1). Topics were selected based on their relevance to the geography curriculum, while professional partners were chosen for their expertise and capacity to provide students with insights into geographical careers close to the school's locality. During school-time, focus groups were undertaken with 12 students from Key Stage 3, 4 and 5 (11-18-year-olds) involved in the first experience (Focus Group 1: FG1), and 10 students from across Key Stage 3 and 4 (11-16-year-olds) who were involved in the second experience (Focus Group 2: FG2).

3.2. Data analysis

The analysis of closed-question survey responses was limited to frequency tabulation, as the primary focus of the analysis was on students' perspectives captured through qualitative responses. Open-ended survey responses and interview transcripts were thematically analysed through an iterative process of (1) data familiarisation; (2) coding; (3) theme generation; (4) reviewing themes; (5) defining and naming themes; and (6) write up (Braun & Clarke, 2006).

3.3. Limitations

This study was conducted within a single MAT with a limited number of schools, so findings are not representative of students in other contexts. The survey achieved a good response rate (n = 439); however, as participation was voluntary, students with a greater interest in geography or careers may be overrepresented. The survey was designed by subject experts and was adapted from published research (Larsen et al., 2021); therefore content validity was considered secure. Nevertheless, teachers working in different contexts may wish to rephrase some questions to better reflect their own setting and students. Data collection occurred over a short period, where only two experiences were examined, limiting insight into the long-term impact or changes in students' aspirations over time.

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Table 1. Overview of the career experiences with industry partnerships

Experience	Learning objectives	Activities and resources
Construction site visit An experience, which enabled learning about the HS2 rail project and related careers for 30 students across Year 9 through to Year 13 (14-18-year-olds). Students had to express an interest in the project and were randomly selected.	Learn about the HS2 rail project as a nationally significant infrastructure project to close the north-south divide - a case study at KS3, GCSE and A level (geography). Recognise some of the geography related careers available in the region (as most students leaving our academy go on to vocational jobs or apprenticeships in the construction industry).	A 30-minute talk by a female engineer and a young male apprentice straight from college. Before students engaged with employers, they received a Network Rail Safety video which outlined the dangers of being located next to restricted areas of railways. Digger VR headsets, geology experiments and explanations, bridge building and design competition. Outside guided bus ride over part of site and visit to the viewing platform over the 'green tunnels' to consider their sustainability, followed by a Q&A session with workers. The following were embedded into subsequent geography lessons: - Students were able to share about the scale and complexity of the project with their peers. - Creation of one page guide to HS2 including specific links to jobs and future careers.
Interactive careers experience An interactive careers experience hosted by HS2 for 54 students across Year 7 through to Year 12 (16-17-year-olds). Students had to express an interest in the project and were randomly selected.	Develop an understanding of a national infrastructure project and how design and technical expertise are blended with practical construction elements across a project's lifecycle. This opportunity was available to all students regardless of year group. Allow students to network with career professionals and gain insight into the construction and engineering sector and the day-to-day opportunities and challenges of working in this sector.	Students were able to partake in a range of interactive career experiences. For example, students completed an activity using a digger stimulator, tipper truck simulators and engage with theodolites to map the courtyard in which students were located. Students also had opportunities to network with industry leaders both within the public and private sector. Students were able to feed this back to the wider school community upon their return. The educational visit is also aligned with Gatsby Benchmarks 4 (Linking Learning to Curriculum) 5, (Encounters with Employers and Employees) and 6 (Experiences of Workplaces).

4. Findings

This section presents insights about students' career aspirations from the student survey across three schools, followed by an analytic narrative of the teacher and student reflections on the curriculum experience.

4.1. Survey responses

The survey results were intended to facilitate the integration of career education into the geography curriculum by providing data on student aspirations, which could then be linked to relevant geography-related careers. Survey responses suggested that students were unclear about the kinds of careers that might directly relate to geography, or career pathways that would be supported by a good geography education. When asked a survey question about geography topics of interest, students were greatly interested in fieldwork (37.8%), natural hazards (32.8%), population and migration (29.3%), economic geography (28.1%), climate change (25.2%) and sustainability (23.4%) and showed little or no interest in the topics of decolonial geographies (92.8%), geopolitics (87.4%), resource management (83.9%), development and inequalities (82.5%) and physical landscapes (78.8%).

Students were asked to imagine what the world of work will look like in 2030 and the knowledge and skills that they would need. Some students imagined the future as broadly similar to the present (7%), with incremental rather

than transformative change that would fundamentally alter current ways of living and working. Others were more pessimistic, expecting worsening conditions with some uncertainty about the future (12%). Environmental degradation was a major concern, with students anticipating increased climate change, melting ice caps and rapid habitat loss by 2030, which would affect future insecurities (e.g. global resources, geopolitics and economics). Responses revealed that some students imagined a future dominated by advanced technology, automation, and AI-driven systems (20%), with some expecting robots to replace jobs, pushing humans into more specialised or creative roles (see Table 2). Simultaneously, students viewed climate change as both an existential threat and a major driver of future sustainability-focused job creation (13%).

Table 2. Students' imagined world of work in 2030

Key Themes	Codes	Indicative Quotes
Technological acceleration and automation	- AI takeover - Robots replacing human labour - Digital/IT skills essential - Futuristic technology i.e. flying cars, microchips - Dependence on devices	"The world will be filled with a lot more technology like drones and robots" (Student 117, year 10). "As knowledge and the power of technology increases, I think the world of work will revolve around technology more, and jobs requiring digital skills will be more popular" (Student 90, year 10).
Environmental crisis and climate change	- Pollution increase - Sea level rise, flooding and submerged land - Extreme temperatures - Plastic-filled oceans - Species extinction - Need for eco-friendly/ renewable energy jobs - Geography and climate knowledge important	"Trying to help the environment will become increasingly important, this is why I think geography and science are both important to understand the world around us, and the effects we have on it" (Student 10, year 9). "Geographical knowledge and skills may be key to saving the planet from climate change that older generations may not be able to fix" (Student 388, year 9).
Economic uncertainty and workforce change	- Greater inequality - Inflation and economic instability - Higher qualification thresholds - Fewer jobs available - Online/remote work - More jobs in sustainability and waste management	"The world of work in 2030 will be more advanced and some knowledge and skills that would be important would be knowing about the economy and understanding the troubles that are caused in the world to try to fix them" (Student 103, year 9). "There will be less jobs available and more online work" (Student 129, year 10).
Skills for Future Work	- Problem solving - Decision making - Teamwork - Communication - Creativity - Independence - Work ethic, perseverance	"I believe AI will be able to replicate a lot of what we do very soon, which is why it is important that people develop skills that ensure they are difficult to replace" (Student 48, year 10).

Across responses, students emphasised the importance of the need to develop transferable skills, such as problem solving, communication, and decision-making, suggesting that they recognised the limitations of purely technical expertise in an automated world. Some students (10%) recognising that as technical tasks become automated, human-centred, interpersonal and cognitive skills will hold increasing value. Similarly, when asked to prioritise specific forms of locational, physical and human geographical knowledge, alongside disciplinary skills such as data interpretation, fieldwork, spatial thinking and the use of maps and digital tools, students more often recognised the importance of disciplinary skills over geographical knowledge (Table 3).

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Table 3. The importance of specific geographical knowledge and skills, as ranked by 439 survey respondents from most to least important

Geographical knowledge and skills	Most	Least
Locational knowledge of important places	183	91
Independent study skills	180	122
A broad knowledge of many different topics	151	97
Fieldwork experience and primary data collection	146	139
Mathematical and digital skills	136	191
Geographical reasoning and decision-making	114	101
Knowledge beyond the specification and textbooks	101	146
Understanding geography concepts i.e. place and scale	98	123
Making connections between geographical topics	90	130
Deep subject knowledge of a few core topics	91	135

When asked about opportunities to learn about geography-related careers in school geography, students mainly mentioned whole-school careers fairs, Personal, Social, Health and Economic (PSHE) education, careers days and options evenings. Some students talked about specific topics and lessons where glaciologists, geologists, geoengineers, marine biologists and vulcanologists were discussed in relation to topics on Antarctica, Coasts and Natural Hazards. Students were also asked what could be done to make geography more relevant to their future careers, a few students called for more hands-on activities, more visuals, more trips and more fieldwork, with others wanting to hear about careers from external speakers, as one year 9 student commented: "It would be nice to know potential careers that could come from geography. Other than the obvious" (Student 193).

When students were asked which person who uses geography in their job they would invite to speak about their career, the overwhelming response was David Attenborough (16%). The reasons given was that his work was interesting, his life fascinating and students recognised him to be an expert on nature and our planet, someone able to communicate the urgent need for environmental action through the documentaries that he made. It was notable that there were many 'unsure' or 'don't know' (21%) responses to this question, suggesting that not all students were aware of the range of jobs that apply geography knowledge and skills or how a geographical education at school (and beyond) makes them highly employable in many sectors. Other students named their geography teachers (4%) , academic geographers e.g. David Harvey, or a professional role they were interested to find out about e.g. civil engineer, climatologist, environmental lawyer, glaciologist, journalist and volcanologist. In some cases, awareness of these jobs appeared to be through family connections rather than their school education (e.g., "my mum because she used to be a civil engineer and I am inspired by what she does" and "well my brother just got an apprenticeship for civil engineering he's a big inspiration of mine"); this raised questions about how students acquire knowledge of professional roles and responsibilities, and the qualifications and experience needed in preparation for successful entry to the labour market.

4.2. Teacher and student reflections on the curriculum experience

On return from the two HS2 visits, the geography teacher reflected on the benefits of authentic, career-oriented learning opportunities in June and September 2025. Then two focus groups with students who participated in the HS2 curriculum experiences were completed in September and October 2025. Four key themes were generated and are discussed in turn.

4.2.1. Theme 1: Broaden awareness of diverse career pathways

One of the clearest benefits of the visit to HS2 was the enhanced awareness of apprenticeship pathways. The class teacher suggested that students gained insight into the possibility of combining work-based learning with formal qualifications and that this was a realistic path that was a real possibility:

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> *Students didn't realise that, you know, you could learn on the job, get a degree and then … you could really see in students' reactions … oh, hang on a second, I had no idea that this was even a thing. (Geography Teacher, Interview 1)*

This was something that was echoed by the students themselves:

> *You get to learn more about the apprenticeships because the guy explained a lot about it to see if it was for you. (Student, FG1)*

Meeting professionals with different entry routes, including an apprentice and a geologist, allowed students to see multiple pathways into geography-related careers. Students took inspiration from these diverse role models as some could imagine themselves following an apprenticeship route.

> *The second talk was by a geologist who had taken a more traditional route … and again, that really resonated with our students. (Geography Teacher, Interview 1)*

Seeing professionals from different academic and vocational backgrounds offered tangible illustrations of the varied routes into geography-related fields. This is important given that students were clear that even though they enjoyed geography they did not necessarily understand how that would convert into career for their future:

> *So you really like geography, but you don't know how to get a job in it. (Student, FG1)*

Rather than just being able to name a field like 'engineering', after the visit, students were able to understand the variety of jobs that could be found within that field:

> *…because like engineering, as you said, the general term, people don't really realise how much engineering jobs are and how different they are from each other. (Student, FG1)*

4.2.2. Theme 2: Connect school geography to the real world

Hands-on experiences, such as handling fossils from the excavation site, made abstract classroom content tangible and helped to connect school geography with the real world.

> *He brought in a whole box of fossils … they'd literally come from the excavation site we were visiting … students could touch and could learn about … it was really contemporary and relevant (Teacher, Interview 1).*

Students saw how school topics link to real industry contexts. As suggested by the teacher, this helped to reinforce curriculum knowledge through experience.

> *We were then able to link that to what … year nine students … learned about Earth's geological history. So there's a really good tie in there. (Teacher, Interview 1)*

The teacher reflected on the ways in which the experience provided an opportunity to make links between different aspects of the curriculum the students had been taught across Key Stages 3, 4 and 5:

> *There's a great opportunity to create synoptic link[s] between units that not only have been taught at GCSE but also set up and support Key Stage 3 or Key Stage 5. (Teacher, Interview 2)*

The students appeared to value the HS2 visit as an opportunity to apply classroom geography to real-world situations. They described seeing geology first-hand:

> *You can physically see the different types of sediment. Where they dug it …the soft and the Hard Rock happening in different layers. And I thought that was really interesting. (Student, FG1)*

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> *It was really important, as they have to know what type of material... drilling the boreholes to identify the geology underneath. (Student, FG2)*

It enabled students to gain a deeper understanding of the immense scale of the infrastructure project, while recognising the significant planning, resources, and timeframe required to bring the construction project to completion:

> *Well, I thought the sheer size of it; it was huge. Like how long it was going to take to build. So the construction; it needs to be well thought out and initially the project was a lot more ambitious. But even though we saw a lot of construction going on, it's a really lengthy process. It's not as likely to reach the original design. It's not going all the way up to Manchester and Leeds, it's just stopping in Birmingham….I didn't really understand how they're going to do it, but now they told me, so I want to see the process and how it visually comes out. …Also the time like it was going on for many years and there wasn't really like the end, there was a lot of construction… which makes us realise how long it takes to build something. (Student, FG1)*

It also helped students to make connections between the theoretical knowledge acquired in school and the applied knowledge utilised within specific professional roles they explored. For example, this student valued the opportunity to learn about jobs that would use geographical knowledge, rather than only focusing on knowledge development:

> *Landscapes… It teaches us more about the jobs rather than just knowledge…like if I wanted to go drilling…, yes. I would need to know that kind of knowledge to help me with the work. (Student, FG2)*

4.2.3. Theme 3: Motivate and engage young people through authentic experiences

Students appeared to highly value the opportunity to be out in the field where immersive learning could take place:

> *It is so important to get out there. (Student, FG2)*

> *You get an opportunity that you will never be able to do. That's why I'm so excited about it… a first-hand perspective on the project, because online you can't see much information, but if you actually go over [there], you learn much more. (Student, FG1)*

The HS2 visit sparked excitement and curiosity, the teacher recalled that their exposure to the project up close was simply awe inspiring:

> *They were all just staring out a window, not really saying anything, just … amazed by what they were looking at. (Geography Teacher, Interview 1)*

By affirming students' vocational aspirations, the visit enhanced student identity formation in relation to future careers.

> *A lot of the students that leave here … go on to vocational based courses … all of those were demonstrated when we went on the HS2 trip. (Geography Teacher, Interview 1)*

The initial inspiration translated into tangible follow-up activities, which enabled students to deepen their understanding of geography in real-world contexts. In a second interview after sixth form student interviews with the geologists and recruiters about their roles and HS2, the teacher reported that these experiences informed their students' geography non-examined assessment. It also motivated, students to proactively interview other people working in geography-related industries (e.g., environmental management solutions working on water pollution from lead mining, surveyors on a nature reserve about their use of drones and GIS in tracking the health of species, lecturers, city planners, entrepreneurs and those working in regeneration). The visit did not only affirm students' career interests, but enabled them to engage in independent enquiry, laying the groundwork for future learning.

4.2.4. Theme 4: Help develop critical and informed citizens

The teacher also emphasized geography's role in cultivating critical and informed citizens:

> *I think creating geographers that are…critical thinkers, essentially is very important… giving students the room to be able to make their own judgments on things I think is really important. (Geography Teacher, Interview 2)*

The HS2 project provided context for students to explore controversy, recognising that real-world decisions involve competing values and evidence, and appreciate the diversity of perspectives that shape such debate:

> *For example HS2, there are some people that really support it and there are some staunch oppositions to it who really hate the scheme and think it's a complete waste of money. (Teacher, Interview 2)*

This was a position also appreciated by the students themselves, as they reflected on the relationship between the HS2 project and sustainable use of resources:

> *Because to actually be able to do all these jobs, we can't just take away from the earth all the time and learn how to sustain it. (Student, FG2)*

5. Discussion: Supporting young people to make sense of local geographies and future careers

The findings from this practitioner research highlight the transformative potential of integrating career education within geography curricula. However, the survey also reveals a significant gap in students' awareness of geography-related careers, with many unable to articulate clear pathways from school geography to future employment or recognise the subject's role in preparing them for green jobs and sustainable careers (Walshe et al., 2024). Authentic, place-based experiences such as industry partnerships and field visits require considerable teacher resources for effective planning and implementation; yet, as our study demonstrates, they bring a number of benefits, as they: **(1)** Broaden awareness of diverse career pathways, **(2)** Connect school geography to the real world, **(3)** Motivate and engage young people through authentic experiences, and **(4)** Help develop critical and informed local citizens.

Industry-school partnerships, as exemplified by this study, offer a model for connecting students' aspirations with real-world applications of geographical knowledge (Boehm, Zadrozny & Blanchard, 2024; Solem, Lambert & Tani, 2013). This approach to curriculum development was particularly effective as it aligned with the broader aims of the curriculum and a desire by the multi-academy trust to meaningfully embed career education into school subject teaching. Meeting apprentices and geologists enabled students to see multiple entry routes into the sector, challenging the misconception that geography is disconnected from vocational opportunities. Such experiences fostered not only knowledge acquisition but also the development of critical and future-oriented dispositions.

A key contribution of this study is its illustration of how powerful geographical knowledge can be mobilised through local, place-based pedagogies. The HS2 visits, for example, allowed students to observe the interplay between physical and human geography, and critically examine the environmental and social implications of large-scale infrastructure. This is particularly important given that the relatively static school curriculum is unable to keep pace with the rapidly changing world of work shaped by technological advances, artificial intelligence, flexible working practices, and the expanding green economy. These experiences can help young people to make links between geographical concepts taught in the classroom and their practical applications in real-world contexts. Importantly, this was not designed as an enrichment activity but a curriculum-aligned extension that deepened students' understanding of the subject matter by situating it within a meaningful professional and environmental context. The HS2 site was a pedagogic resource, bringing together geological processes, environmental change and economic development in ways that provided young people with a situated understanding of geographical concepts, including space, time and scale. The hands-on experiences of handling fossils, engaging with VR simulations, and observing large-scale infrastructure made abstract concepts such as geological time tangible and fostered synoptic links across key stages, reinforcing the value of experiential learning (Kolb, 1984). In this sense, the visit aligned with place-based education, demonstrating how localised, authentic settings can embed disciplinary learning more deeply (Rawlings Smith & Pike, 2023).

Our study also recognises the importance of connecting school geography to the real world, through a 'world-centred education' (Biesta, 2022); that is an education that engages with knowledge for academic purposes, but also connects young people with relational knowledge of their place in the world, helping them to make sense of their social and natural environment and the rapidly transitioning world of work. This is particularly important at a time of curriculum reform when the Curriculum and Assessment review (DfE, 2025b) has commended geography for its 'real-world focus' (p. 82). Yet, the emphasis in the current national curriculum on global places and processes (DfE, 2013) has inadvertently marginalised local geography, and over the last decade this shift in focus has been amplified in school systems where curricula are designed by subject leaders working at a distance (e.g. in multi-academy trusts) from the schools they serve. For geography teachers working in these academies, we recognise the importance of giving subject teachers agency to localise the curriculum, to situate school geography in the local community and draw on local case studies and industry expertise to make the subject relevant to the everyday lives of young people.

Affective and motivational impacts were evident, with students expressing excitement and curiosity, as well as their sense of awe at the scale and complexity of the HS2 project; this underscored the motivational power of immersive, authentic learning. These responses are significant in light of the Special Issue's focus: suggesting that when students are given agency to explore local contexts and interact with professionals, they are more likely to develop the confidence and skills needed to navigate societal change. These experiences validated career aspirations and supported identity formation, particularly for students with strong vocational trajectories, further highlighting the inclusive potential of pedagogical approaches that immerse students in industrial rather than classroom contexts. The literature on place-based education supports this approach, arguing that localised, authentic settings embed disciplinary learning more deeply and motivate learners (Rawlings Smith & Pike, 2023; Sobel, 2004). While for teachers, the interactions with industry experts supported their own professional development to expand their reservoir of local place knowledge.

Findings also point to the role of geography education in cultivating critical citizenship. By engaging with controversial issues, such as the debates surrounding HS2, students learned to appreciate multiple perspectives, weigh evidence, and consider the ethical dimensions of geographical decision-making. This aligns with calls for geography curricula that are not only academically rigorous but also oriented towards social justice and environmental stewardship (Kwauk & Casey, 2021). The site visits were a stimulus for some high-quality geography questions, fostering deeper critical thinking than is often seen in the classroom, arguably a form of powerful pedagogy that constitute intellectually powerful ways of thinking, debating and practicing geography (Maude, 2016; Roberts, 2023).

Despite the wide-ranging benefits, the study highlights challenges in curriculum development, notably the substantial resources required to create high-quality, career-oriented learning opportunities. Teachers need time, support, and access to professional networks to localise curricula and embed industry expertise. Learned societies and professional associations can play an important role, setting up events and databases to connect industry experts with teachers. The current period of curriculum reform in England presents both opportunities and risks: while policy discourse increasingly foregrounds employability (DfE, 2025b), there is a danger of prioritising workplace skills over disciplinary rigour. Geography educators must navigate these tensions, ensuring that curriculum development remains anchored in disciplinary knowledge while embracing the relevance of geography to global transitions such as climate adaptation and the green economy (HM Government, 2024).

6. Conclusions

By situating learning in local contexts and facilitating meaningful encounters with employers, this study demonstrates how young people can develop geographical knowledge and skills that are directly relevant to employment, while also cultivating their capacity to become informed, critical, and future-oriented citizens. England is currently undergoing a period of curriculum reform (DfE, 2025b). This has provided a valuable opportunity to reconsider how knowledge, skills, and employability are conceptualised, integrated and enacted within the geography curriculum, while ensuring alignment with both disciplinary rigour and the demands of a rapidly changing world. For geography education, this creates opportunities and risks. Career-oriented curriculum developments provide space to foreground geography's relevance to global transitions, including climate adaptation, spatial inequalities and infrastructure transformation, helping young people engage critically with an uncertain and rapidly changing world. At the same time, there is danger of a shift towards an over-socialised curriculum (Young & Muller, 2010), where employability could be prioritised over epistemic rigour. Though, geography educators are well placed to mitigate this risk through curriculum development that is

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anchored by disciplinary knowledge and geography's conceptual foundations, and enacted through geography's signature pedagogies, including fieldwork and enquiry. Within this context, school-industry links can serve as pedagogic resources, but this should not diminish the capacity to challenge dominant economic narratives within geographical education.

The career-oriented geography experiences with industry partnerships under focus in this article emphasise the value of holding employability of young people and disciplinary purpose in productive tension. For geography education, place-based pedagogies appear to offer a way of working within these tensions. While such opportunities may be resource-intensive, the evidence suggests they are of great value in supporting learners' academic, personal, and career development. For schools serving students with strong vocational trajectories, embedding such experiences within geography could play a pivotal role in positioning the subject as relevant, future-focused, and deeply connected to the world beyond the classroom. In doing so, place-based pedagogy contributes to curriculum-making for young people's futures. Further research could examine how tensions are reflected in the positioning of employability with school policy across jurisdictions, and how this is interpreted and enacted by geography teachers within their curriculum making.

This research emphasises the value of practitioner research in and for geography education. Through a co-created research-practice approach, we evidence how engaging geography teachers as active partners in research can enable rich insights into how curriculum development, careers education, and disciplinary knowledge intersect in practice for young people's geographical education. Consequently, it might also be of value to explore how the pedagogical approaches teachers used in this relatively small study can be scaled and sustained across diverse educational contexts, including in other jurisdictions, to ensure all students have the opportunity to engage meaningfully with geography's transformative potential.

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Contribution to the Special Issue Topics: This article shows how geography teachers can integrate careers education into the geography curriculum in response to uncertain social, environmental, and economic futures. Drawing on a case study of a school–industry partnership centred on a major infrastructure project; we illustrate how immersive real-world learning enhances understanding of contemporary geographical issues and geography-related careers. By combining powerful disciplinary knowledge with applied insight, the article highlights how geography education can support geographical thinking, informed career decision-making, and engagement with geography's transformative potential.

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