Knowledge, Practice and Classroom Space: Insights from a Geography Teaching Practicum at a Cambridgeshire Secondary School

STUDENT RESEARCH REPORT

Knowledge, Practice and Classroom Space: Insights from a Geography Teaching Practicum at a Cambridgeshire Secondary School

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Abstract

Context: The study was conducted within the framework of educational geography in a secondary school near Cambridge, focusing on Year 8 geography curriculum on coastal erosion and landforms. It examined the dynamics of student engagement through hands-on learning activities and the spatial context of the classroom environment, particularly the role of dialogue in bridging the gap between theoretical knowledge and practical application.

Aims: The research aimed to investigate the disconnection between model-making activities and students' understanding of geographical concepts, as well as explore how the classroom space influences student engagement and learning. It sought to answer essential questions on the nature of this disconnection and how strategies like those in the Think–Talk Toolbox (TTT) can facilitate deeper engagement.

Methods: A qualitative research design was employed, primarily involving classroom observations and analysis of interactions during model-making activities, across two Year 8 classes (students aged 12-13 years) over one month. The researcher acted as a teaching assistant, observing students' behaviours across multiple lessons, engaging in informal dialogue, and documenting the learning environment and its effects on student engagement. TTT techniques for fostering reflective dialogue were integrated throughout the inquiry.

Findings: The study identified two primary disconnections: between students' practical model-making and their geographical knowledge, and between students and the classroom space itself. Students often engaged in model-making mechanically without understanding the underlying geographical principles. Additionally, classroom resources went largely unnoticed, leading to a lack of meaningful engagement with the learning space.

Implications: The findings suggest that incorporating dialogic strategies into classroom practices could enhance students' ability to connect hands-on activities with theoretical knowledge, fostering a more integrated understanding of geography. Further exploration is needed to identify additional methods that can engage students with their classroom environment, as the current approach was insufficient to activate their critical thinking and awareness of spatial context.

Keywords: geography education, model-making, dialogic education, classroom space

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Introduction

I grew up in Ganzhou, a poor region in Jiangxi Province. Thanks to my family, I had access to more educational resources than other students in my county, though we were still worlds away from the resources available in the city and more developed educational provinces. Growing up in that environment, I learned to love communicating with others. Through the construction of dialogue, I saw a bigger world and elevated my own thinking.

This journey sparked an even greater curiosity for the unknown, and I've maintained a genuine openness to embrace others and different cultures. My passion was magnified when I entered the geography program, and it continues to support my studies, driving me to become an excellent future geography teacher.

Coming to the UK, to Cambridge, is an extension of my childhood desire to explore a bigger world. My connection to the world, my bond with dialogue, and my longing to cultivate a kind and contributing next generation - all of these things have a chance to shine brightly in Cambridge, and they will continue to shine in Ganzhou.

Context

The University of Cambridge, and Hughes Hall in particular, is an open and inclusive sanctuary for teaching. While I had some exposure to dialogic education during my term at Beijing Normal University, it was not until I arrived at Hughes Hall that I could truly delve into it through daily interactions.

Before coming to the UK, I had already begun to incorporate student-teacher dialogue into my lesson designs, but my attempts were superficial and naive. I was just criticized by a teacher for not allowing students the freedom to explore.

As my teacher rightly said, dialogue is crucial in the field of geography. After the teacher provides the necessary foundational knowledge, students can engage in heuristic exploration of the geographical phenomena around them. They are certainly capable of and have the ability to retrieve information on their own and perform diverse analyses based on the materials provided by the teacher.

Geography is fascinating; it allows for different voices and supports a variety of possibilities. When geographical practice resonates with students' lives and when geographical topics tap into their curiosity, dialogue flows naturally. In the context of Think-Talk Toolbox (hereafter referred to as TTT), geography is often the subject that most needs and values “explaining”. The Think-Talk Toolbox (TTT) features a balanced emphasis on thinking and talking skills. The ‘thinking’ component is focused on promoting critical analysis, creative problem-solving, and the synthesis of information into coherent understanding. On the other hand, the ‘talking’ component emphasizes articulation, collaborative dialogue, and constructive feedback, enabling students to express their ideas clearly, engage with others’ ideas, participate in meaningful discussions, and build a sense of community (Ji & Hennessy, 2024). Actually, besides “explaining”, TTT also concludes “guiding”, “connecting” and so on, which will be further illustrated as below.

No one can claim that their viewpoint definitively sculpts the true principles of a geographical phenomenon. This is why we must continuously observe, experiment, conduct fieldwork, and dig deeper, to ask ourselves: “Is this really the case? Why is it so? What clues can prove this conclusion?” Geography doesn't require arbitrary judgments, but rather an ongoing process of exploring, discovering and inferring. Everything changes in the evolving relationship between humans and nature.

When it comes to cultivating students' geographic practical abilities, mere “explaining” is insufficient - this is especially true when students are making geographic models. During this process, students tend to focus more on “doing” rather than “talking to explain.” However, pure “doing” often leads students to prioritize the accuracy of their hands-on work, while making it difficult for them to engage in critical thinking during the practice. Questions like “Why are we making this model?” and “What is the significance of each step?” often arise in the absence of “explaining.” Therefore, it is crucial for teachers to use “guiding” and “connecting” tools to build a bridge between hands-on practice and theoretical knowledge. At first，I just aimed to research this, but some interesting things happen, which contributes to my former study. Further details are in Inquiry, Activities and Data.

Motivation, focus and questions

Educational geography and dialogue: in the classroom space

Educational geography emerged as an interdisciplinary field between geography and education in the mid-twentieth century. With the “spatial turn” in human geography and the subsequent “social turn” of humanistic geography formed in the wake of critiques of the “science-first” paradigm, the scope of educational geography initially centred on educational planning, educational land use, disparities in educational provision and outcomes, and school choice. Scholars have since begun to focus on the role of space in social theory and in the construction of everyday life (Yang Ying et al., 2016).

Theoretical development in educational geography has moved toward the analysis of space at three distinct scales, and analytical frameworks have also come to be differentiated into more “inward-looking” and “outward-looking” orientations.

In Thiem’s study, “inward” research refers to studies in which education itself constitutes the object of inquiry, focusing on the spatial variations of educational provision, consumption, and school outputs; “outward” research refers to studies of the spatial processes of external social, political, and economic changes related to education (Thiem, 2009). Within this framework, scale is further differentiated: the micro- level encompasses learners, learning spaces, and schools and communities; the meso- level includes regions and nations; and the macro- level extends into the realm of educational globalization.

Research on learning spaces at the micro level primarily revolves around school space, classroom space, and the significance and power construction of students’ spatial practices. This study focuses on the Year 8 geography curriculum - erosion and coastal landforms - and observes and records students’ learning states within the broader context of classroom space.

Methodology

From a methodological perspective, two parallel research traditions can be identified in the existing literature. One strand adopts quantitative spatial-analytical approaches, often drawing on tools such as Geographic Information Systems (GIS). The other is grounded in critical spatial theory and focuses on uncovering the power structures and oppressive mechanisms embedded within places. While the former tends to visualise spatial inequalities through maps and spatial indicators, the latter aims to reveal the institutional and symbolic forms of domination that operate in everyday spaces (Butler & Sinclair, 2020).Regarding research foci, most studies conducted at the micro scale can be summarised as combining a "space + lens" framework. "Space" refers to the specific settings investigated - such as classrooms, corridors, playgrounds, and other school environments (Tupper, 2008).The "lens" encompasses perspectives including gender, race, class, self-consciousness and national/ethnic identity (Tupper, 2008),religious beliefs(Collins, 2006), and issues of exclusion and inclusion within student group (Valentine, 2002).

Given that children and young people are highly imaginative and expressive research participants, methodological approaches have become increasingly diverse. In addition to interviews and questionnaires, scholars have adopted creative and participatory methods such as drawing-based elicitation, participatory video, photo elicitation, and Photovoice (Jørgensen & Allan, 2025).In sum, research on school learning spaces in Western scholarship has become relatively mature, and studies focusing on classroom space in particular have developed a well-established set of methodological and theoretical frameworks.

In terms of this study, it adopts a qualitative research approach, drawing primarily on classroom observations and naturally occurring conversations as key sources of data. The fieldwork was conducted at a rural secondary school on the outskirts of Cambridge, hereafter referred to as School C. I joined the school as a Geography teaching assistant, assuming the role of a "special kind of adult" (Zhang, 2022) situated between educator and observer. This position enabled me to interact with students while maintaining appropriate professional distance, allowing for sustained and in-depth observation of learning spaces and classroom practices.

School C places great emphasis on holistic education. Its lessons are characterised by rich teaching materials, frequent hands-on activities, and an inquiry-oriented approach to questioning in which correctness is not the sole criterion. Although the school operates on a subject-based timetable, it does not use fixed homerooms; instead, students move to designated teaching spaces for each lesson, similar to university timetabling. In Geography, the school has three dedicated classrooms (GE1, GE2 and GE3), enabling teachers to design immersive, theme-specific environments.

During the fieldwork period of four weeks in September to October 2025, I regularly observed lessons from the back of the classroom, adopting a largely non-intrusive stance while supporting classroom tasks and assisting students when appropriate. On average, I participated in approximately 25 lessons per week, observing students from KS3 (Year 7–9) to KS4 (Year 10–11), and occasionally Year 12, resulting in a substantial collection of observational fieldnotes and textual data.

For reasons of student privacy and safeguarding, all photographs were taken only with explicit permission from the class teacher and in accordance with the school's data-protection policy. Consequently, the study does not include audio recordings or formal interviews with students, and reconstructed dialogue excerpts rely solely on contemporaneous written notes.

Practice and Focus: Starting with Model Making

In order to understand how students engaged with geographical concepts through hands-on tasks, I began my inquiry by closely examining a Year 8 lesson on coastal erosion. The lesson combined visual explanation with a practical model-making activity, offering a clear opportunity to observe how students move from procedural actions to conceptual understanding.

The teacher introduced the topic using images of key coastal erosion landforms - such as cracks, caves, arches, stacks and stumps - highlighting their formation and development. Students were then given pre-printed worksheets, which served as the central task of the lesson. These worksheets required students not only to construct a paper model representing the erosion sequence but also to complete text-based questions directly linked to the model's geographical meaning (see illustration in Figure 1).

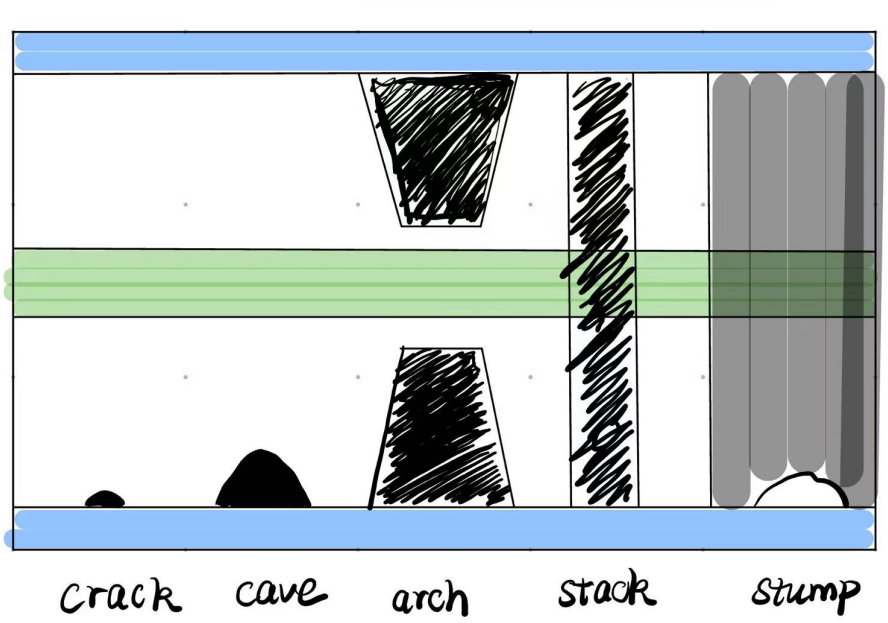

Fig.1 Schematic diagram of the unconstructed model

The model was designed to simulate erosion by cutting away black areas on a printed sheet while keeping the white areas intact as uneroded material or erosion remnants. Certain steps required particular care: students needed to paint the top and bottom edges blue to represent the sea, avoid cutting through the blue boundaries, and finally fold and glue the sheet into their books to transform the 2D template into a 3D landform.

During the first lesson, I supported several students who struggled with the task. Their difficulties mainly included (1) cutting the black areas without damaging the blue edges, (2) accidentally cutting away the white areas instead, and (3) later being unable to complete the worksheet questions accurately because they had not understood the meaning behind the cutting steps. My guidance at this stage was largely procedural - I focused on helping students complete the model correctly and keep pace with the lesson, rather than prompting deeper geographical reasoning.

At that time, my assistance only stayed at the level of "guiding hands-on operations," as I tried to ensure every student could keep up with the class progress in time.

In the second lesson, however, I met a young boy sitting in the back row. He listening quietly and working on his model in silence, with little interaction with his classmates. I tried to strike up a conversation with him.

TA: Could you tell me what you're going to do next?

S1: I need to cut the paper, and then make an object like the teacher's.

TA: Okay, just do it. But if you find it hard to cut this black area, you can fold the paper - this way, the black part will be exposed, and you can cut it with scissors.

Once I knew he understood what he needed to do, I went to help other students. Of course, most of their problems were figuring out how to cut the black areas without damaging the white parts. Thanks to my previous paper-cutting experience, I was able to teach them paper-cutting techniques. After mastering these methods, they went from not knowing how to cut properly to finishing the cutting quickly and successfully making their models.

But when I went back to the boy, I found he had cut off the white parts and kept the black ones instead.

TA: Why did you do it this way?

S1: Because the black parts are more noticeable, so I kept them.

TA: That's not right. You should cut off the white parts instead. You can check the example the teacher put on the whiteboard.

S2: Okay, I get it. (Then he kept cutting.)

I squatted down beside him and guided him step by step on what to do next - he had missed the earlier steps since the PPT was already on the final one. After he finished each step, I would encourage him by his side, saying, "You see, you have made such great progress!"

Finally, after making a new model from scratch, he finally caught up with the rest of the class. When filling in the blanks, he seemed confused about what to write. On one hand, the prompt words on the whiteboard were indeed too vague; on the other hand, he still had a lot of confusion about the meaning of the model. In fact, he really didn't understand why he should cut off the black areas instead of the white ones, nor did he know the significance of each step in making the model - or rather, the corresponding geographical knowledge.

This situation was not an isolated case. When tutoring other students, their behaviors also showed that they focused more on “how to make the model” while lacking reflection on “why they were making the model.”

This phenomenon is also common in China, or rather, I’ve experienced it myself. Given my academic background, hands-on model-making is an essential part of my learning. Yet whether I’m making a model independently or collaboratively, I’ve often been so focused on figuring out “what to do next” that I rarely stop to think “why to do it that way.” It’s only after the model is completed that I begin to feel a strong sense of curiosity about it - then I start reflecting on its meaning and purpose, as well as its connection to geographical knowledge.

In reflecting on my observations, I initially saw two separate issues: the disconnection between knowledge and practice in students’ model-making, and their apparent lack of engagement with the classroom space. Yet these may not be independent. As Latour has shown, meaning emerges through a series of translations - from observing the world, to sampling, to representing and reporting - each embedded in discourses and practices (Latour, 1999). What I observed at School C was the reverse: the classroom was filled with geographical representations, from posters to models, yet students rarely acknowledged them; and when they produced their own models, the activity remained mechanical, detached from disciplinary meaning-making.

This became even clearer when I compared it with my own schooling in China. There, students usually stay in a fixed classroom for most of the day. Through the class committee system, they are delegated responsibilities such as maintaining hygiene, organising displays, or managing multimedia equipment. These forms of delegated authority create a sense of ownership, enabling students to build connections with their classroom space. At School C, by contrast, the rotating-classroom system deprives students of such responsibilities. They enter the classroom only for the lesson and leave immediately afterward, with little sense of belonging or engagement in shaping the environment. The issue, therefore, is not simply that students lack metacognitive awareness, but that discourses and practices which could generate meaning are largely absent.

It was in these classroom realities that my central questions began to take shape. I repeatedly observed students producing paper models step by step, yet seldom pausing to ask why they were doing so or how the activity related to the geographical concepts being taught. The walls around them displayed posters, maps, and even previous students’ work, but these too went largely unnoticed. What struck me was not the absence of resources, but the absence of dialogue: the missing conversations that might have connected practice to knowledge, and learning to space. This led me to ask:

- Why do students so often experience a disconnection between geographical knowledge and practical model-making?
- How might teacher-led dialogue strategies, such as the Think–Talk Toolbox (TTT), help bridge this gap?

And more broadly,

- How does the classroom space itself shape the ways in which students engage with knowledge and practice?

These questions emerged directly from the scenes I witnessed - the silent posters, the mechanical models, and the students who seemed present in the room but absent from its meanings.

Inquiry Activities and Data

The disruption of linkage between knowledge and practice

When Student 1 was engaged in the geographic model-making activity, I took photos of his model results before and after my guidance, with his permission. In a sense, I did help him keep up with the class progress in a timely manner through my guidance. However, as mentioned earlier, this was still not sufficient.

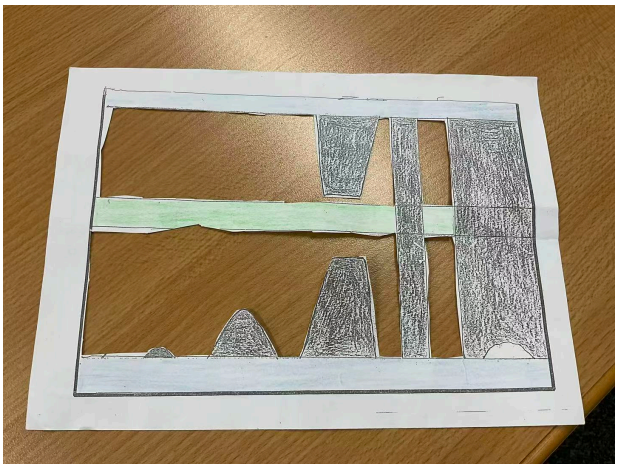

Fig.2 The remains of former paper-cutting

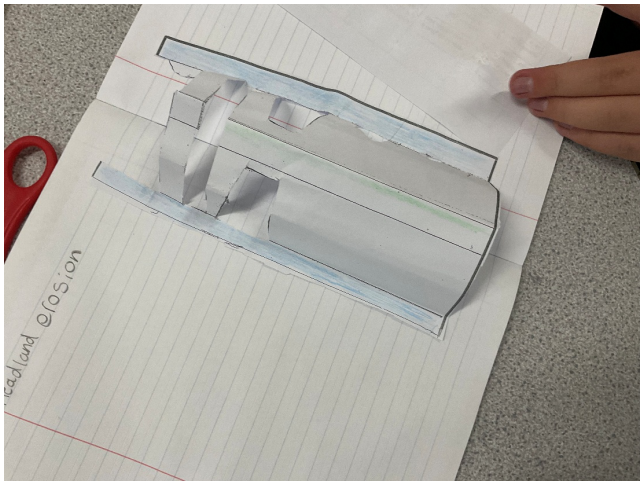

Fig.3 The finished model glued into the book after guidance

In the next year 8 class, when students were making their models, I encountered another student who had cut off the white parts.

TA: Why did you cut off the white parts? The PPT clearly says to cut off the black ones.

S2: Sorry, I got them mixed up. Could you give me another sheet of paper so I can start over?

TA: (Handing over the paper) Can you explain to me why we need to cut off the black parts instead of the white ones?

S2: I'm not really sure. I was just following the steps.

TA: Think about the knowledge we're learning right now - erosion, right? This model is actually closely related to what we've been studying.

S2: (Looking at this model) It's very similar to the pictures the teacher showed us. (Pointing to the handout text) This is a crack, this is a cave, this is an arch, this is a stack, and finally this is a stump.

TA: When we cut, do you notice that we're cutting off more and more of the black areas?

S2: Oh, I get it! Actually, the process of me cutting off the black areas is simulating the process of rocks falling off.

TA: Then what are the remaining parts?

S2: They're the different landforms

Guidance strategies are often described as "directing discussions and activities toward meaningful outcomes" (Ji & Hennessy, 2024). Depending on the approach, they can be divided into four types:

- G1: encouraging creative problem-solving
- G2: focusing learning progression
- G3: encouraging thoughtful consideration
- G4: stimulating critical thinking

In this dialogue, I first invited the student to explain his understanding of model-making during the process. This strategy corresponds to G3, as my aim was to open up a deeper awareness of the practice rather than having him mechanically follow the teacher's instructions. Afterwards, in order to help the student reflect more carefully on the meaning behind the procedural steps, I employed a connecting dialogue strategy.

Connecting refers to dialogue that *links new ideas to prior knowledge, personal experiences, and real-world applications*, thereby enriching understanding and making learning more relevant. This type of dialogue has four branches:

- C1: linking to past learning
- C2: relating to personal experience
- C3: exploring related concepts
- C4: applying to real life

I believe that students' tendency to mechanically follow procedural steps without understanding their underlying meaning largely stems from their tendency to treat knowledge acquisition and classroom practice as two separate parts. They often regard the two as independent.

To address this, I attempted to connect practice with classroom knowledge by adopting the C1 strategy. In fact, once reminded, the student gained some new insight, yet still found reflection challenging. At this point, I applied both the G2 guiding strategy and the C4 connecting strategy. My aim was to help the student focus on details that could spark further insight (for example, hints about the growing black areas), encouraging him to relate his immediate actions to real-world contexts, thereby aligning knowledge with practice. Ultimately, his response to my question showed that he was able to transfer other aspects of the practice into his existing knowledge framework.

On September 19th, two weeks into my placement. I conducted this practical activity in another 8th-grade class. During this lesson, I provided guidance to three students in total, and all of them shared the same confusion about "why we cut the black parts instead of the white ones."

The first student I helped - a girl - was the fastest at making the model in the class. However, after admitting she didn't understand the reasoning behind it, she openly stated, "I don't like geography, and I don't want to know why." The responses from the other two students were distinct from hers.

The second student was sitting in the back row, alone. He was very quiet and silent, yet he cut the paper quickly and with great focus.

TA: Can you explain to me why we need to cut off the black areas instead of the white ones?

S3: I'm not really sure.

TA: This is closely related to the knowledge we just learned. Can you tell me what we studied earlier?

S3: We just learned about erosion and different landforms.

TA: So look - what is the black part we're cutting off?

S3: Is it erosion?

TA: You're very close. Think again: as the black area gets bigger and bigger, what does that symbolize?

S3: It symbolizes more and more erosion? Then the black parts are the rocks that have peeled off!

TA: Exactly! Now, what about the white parts?

S3: (Shaking his head) I don't know.

TA: (Standing the model up) Can you tell what it is now? After the rocks fall off, what's left behind?

S3: They're different types of landforms.

TA: That's a great answer!

When guiding this student's reflection, I likewise adopted an **"explaining - guiding & connecting"** strategy. Throughout the dialogue, I made sure to respect the student's autonomy in constructing his own thinking. The conversation began at a key point - why the black areas should be cut rather than the white ones - using a G1 tool. During the process, I did not simply "deliver"

knowledge directly; instead, I helped him recall prior understanding（C1). As the student's answers became increasingly accurate, I actively affirmed his ideas. When he encountered difficulties in reasoning, I remained patient and once again connected the model to real-world contexts (C4), guiding him through the process of reflection. His subsequent high accuracy in filling the gaps on the worksheet directly confirmed the effectiveness of these dialogue strategies.

The third student called me over at first, asking me to get him a new worksheet because he said he had accidentally cut it wrong. But when I went back to check on him later, he had already finished making the model with ease. After that, my conversation with him was similar to the one I had with the second student. Both of them were able to grasp the true meaning of making the model in a short time, yet they rarely took the initiative to reflect on it on their own.

I have found that, behind this disconnection between practice and knowledge, what essentially emerges is that some students focus more on 'why things happen' but much less on 'why we do so', and almost never on "why this question arises at all". In other words, they rarely engage in **meta-questioning** – questioning the origins and assumptions of their own question.

In fact, students are very close to real-world knowledge, yet they rarely take the initiative to think and reflect on why they are doing and what they are doing. As a metacognitive ability, it is difficult for students at any educational stage to develop it unconsciously. Teachers should guide students to continuously reflect on themselves and their actions, and facilitate the **connection between practice and knowledge** - rather than merely staying at the level of "completing the practice correctly."

Extending the disconnection: spatial practices in the classroom

In line with Lefebvre's notion of spatial practice (Brenner & Elden, 2009), students' activities in the classroom extend beyond model-making to include writing, group work, and interactions during lessons. Yet here, too, the phenomenon of disconnection was evident. In one lesson, I observed a student (S4) seated at the back of the room, disengaged from the class. After his tablet was confiscated, he turned to playing with glue and pens rather than focusing on the lesson. When I approached him at the teacher's request, our conversation revealed his frustration:

TA: Please write down the title of this lesson.

S4: OK. (writes impatiently, ending with an angry flourish)

TA: (find something wrong) Do you find geography boring, with little meaning?

S4: Yes. I hate geography.

TA: Why do you think so? Can you explain?

S4: It's all about writing, writing, writing - it's so boring. I like thinking. I prefer math or science.

TA: Geography also involves a lot of thinking, though perhaps you haven't reached that stage yet.

S4: Then I'll stop studying geography altogether.

This encounter made me reflect on whether I, too, as a TA, sometimes imposed writing tasks without clarifying their purpose. It also seemed to reflect a wider pattern in KS3 geography classrooms: lessons often consisted of multiple short activities - note-taking, worksheets, group tasks - while direct teacher delivering was limited. Many students appeared to experience these as repetitive and "meaningless." The classroom discourse reinforced this perception: although teachers frequently invited students to answer questions, their responses were usually met with generic praise ("fabulous," "excellent," "good thinking"), with little probing or elaboration. Such monologic feedback, while encouraging, rarely fostered deeper dialogue. In this sense, the disconnection between knowledge and practice extended beyond model-making to students' broader spatial practices, where activities remained unanchored in meaningful reflection.

Another recurring feature in the classroom was the use of mind maps as an analytical tool. In one lesson, students were asked to analyse why a particular country had developed. I engaged in a dialogue with one of the more active students (S5):

*TA: Do you have any other ideas? (**Building on**)*

S5: Yes! (writes: more people can read and write)

*TA: How does this connect with what we learned before? Is there a specific term for it? (**C1**)*

S5: Oh! Literacy rate!

*TA: So, how and why? (**G2**)*

S5: Because they have more opportunities for jobs.

*TA: Can you explain this in more detail? (**Explaining**)*

S5: If people can read, they can get better jobs, which then increases tax revenue and supports social development.

TA: Excellent!

Through this dialogue, the student moved from a simple observation to constructing a more elaborate causal chain. In dialogue, knowledge and practice appeared connected. Yet when recording his notes, the student did not extend this reasoning on paper. Instead, he placed "better jobs" and "higher tax revenue" in separate parts of the mind map. The logical chain that had been built orally was fragmented in writing.

This may reflect a wider teaching pattern in which knowledge is often presented as discrete points rather than as connected reasoning, leading students to internalise the habit of "listing" rather than "***connecting***." While this could also be related to the developmental stage of the students, it raises a concern: if such fragmented practices become ingrained, they may form a cognitive disposition that hinders geographical thinking. After all, the real world rarely follows a simple, linear chain of single causes and single effects.

Walk in, walk out, seldom look around: The place is losing meaning

As my sight looks into the ***space***, some interesting stories and discoveries also emerged during my observations and assistance. When I first entered the classroom, I was deeply impressed. Unlike

classrooms filled with slogans about “hard work,” the walls here were mostly covered with students’ own work - posters, maps and so on.

There were also many encouraging messages, such as “you are never too small to make a difference.” This quotation comes from the Swedish girl who has travelled repeatedly to Gaza and whose climate-change activism has earned her a place in this classroom (GE1).

In addition, there was a wealth of resources on geography learning methods, mapping skills and more. At first, I could not help but marvel at how meaningful - and how thrilling for a geography enthusiast - it is to have a classroom full of geographical elements, co-constructed by the students themselves (see images in figures 4-7).

Fig. 4-7 Partial decorations in GE classroom

There are three geography classrooms here, each with its own theme and style - largely because each is taught by a different lead teacher, with typically two teachers assigned to a classroom. The second classroom (GE2) is less decorated, but at the back there is a homemade volcano model and a wind-vane model, and the walls also display encouraging messages. The third classroom (GE3) is smaller than GE1 but contains some new decorations, such as “Youth Climate Activists,” which introduces how other members of Generation Z engage in geographical practices around the world, as well as a poster listing different geography-related career options such as “town planner” and “GIS specialist.”

Yet over these days it seemed that few students paid much attention to their surrounding learning environment. They came and went in haste: apart from a short break in the morning and the

lunch period, they have no recess, so they must rush to the next classroom immediately after class. These classrooms do not "belong" to them - they simply come to attend lessons and nothing more. During lessons they are also busy focusing on the teaching and group activities; to look around too much would appear as though they were not paying attention.

There were two students - both S2 and his seatmate - who were the only ones over these days to ask me about the classroom decorations. They said to me, "Sir, what's the meaning of GIS?" I was surprised that they had actually begun to take notice of the content displayed in the classroom space, even if it was perhaps out of simple curiosity or because they were "at loose ends" and not fully engaged in discussion or group work. After I answered, they continued glancing up at and around the decorations near them, looking for quite a while before returning to the tasks they were supposed to be doing.

Such a situation is by no means uncommon in other subjects. On two occasions I assisted teachers in the English classrooms (EN8 & EN9). I saw that the walls were also covered with various posters and students' work. On the theme of "Old English," for example, different students had produced their own hand-drawn posters, each with very different ideas and styles - how delightful they were. Yet these seemed to be earlier students' work, and the classroom was so large that current students could scarcely even glance at them.

In a certain sense, the decoration and "planning" of classroom space reflect the individual aesthetics of teachers - how they wish to shape a classroom and what kind of learning atmosphere they hope to create through these displays. This learning atmosphere may also be regarded as a form of "culture", and construct *representational of space* (Brenner & Elden, 2009): upon entering, one shares common goals and is immersed in the same "atmosphere." Such an atmosphere corresponds to what Smith describes as the everyday affect that arises from the interplay of place, space and personal emotion (Phillips et al., 2023).

Under the rotation system, classrooms as learning spaces seem to have been reduced to mere functional use. Rather than students being mobile, it is as if the classrooms themselves are mobile. Even in well-decorated, content-rich classrooms, students come to attend lessons without ever really looking at their surroundings. They experience no sense of belonging, no sense of space or place. For them, "this is simply the room where today's lesson takes place," and it could just as easily be somewhere else. The tangible sense and meaning of space have been reduced to mere utility, and the cultural construction and "atmosphere" have become an empty, impersonal shell.

Drawing on Soja's concept of first space (Soja, 1998), the material dimension of the classroom encompasses not only its physical layout - such as fixed rows of desks, wall displays and past student work - but also the subject-specific resources that define the room's disciplinary identity. In the UK secondary system, Geography classrooms are deliberately equipped with specialised materials: wall-sized world maps, physical landform models, globes, rock samples, and curriculum-aligned display boards. Such resources are costly and difficult to duplicate across multiple rooms, which explains why secondary students move between classrooms while teachers remain in subject-designated spaces. In this sense, the first space of Geography is materially dense, professionally curated, and institutionally protected.

Yet despite this richness, many elements of the physical environment remain static and unchanging across cohorts. Posters or displays often function as “disciplinary wallpaper” - visibly present yet seldom engaged with by students in a dialogic way. The spatial arrangement and curated displays project a particular vision of what geography learning should be, but they rarely invite students to reinterpret, contest or extend these meanings. Thus, while the first space is materially specialised and disciplinarily distinctive, it still operates within a largely monologic mode of representation rather than becoming an active site of inquiry or student meaning-making.

The ***second space*** represents the cultural atmosphere of the classroom, shaped primarily by teachers and accumulated across cohorts. This includes motivational slogans, disciplinary expectations, and curricular representations, all of which project a particular vision of what geography learning should be. However, this atmosphere is monologic rather than dialogic – as same as the analogy which describes the dialogue’s feature should have been “volleyball game” rather than “ping-pong game”, reflecting the voices of teachers and past students but rarely inviting active reinterpretation.

The ***third space***, which is called ***lived space*** by Soja and where students’ lived practices might re-appropriate or re-signify the classroom, remains limited. Their power to alter the material first space is minimal, and their voices in the second space are muted, leaving little scope for the classroom to become a site of meaning-making. This spatial configuration helps to explain what I observed in practice: students engaging in model-making as a mechanical exercise, disconnected from the geographical knowledge it was intended to represent, and showing little attention to the visual artefacts surrounding them. In this sense, the absence of a vibrant third space contributes directly to the disconnection between knowledge and practice. It is here that dialogic strategies such as the Think–Talk Toolbox gain significance, as they offer a way of reintroducing students’ voices and perspectives, enabling them to link the material and cultural dimensions of space through reflective dialogue. However, due to limited research time and to avoid the suspicion of “classroom gossip”, no relevant dialogue was carried out, which needs further exploration.

Ethical considerations and relationships

Ethical issues and how they were addressed

Because my research involved observing and supporting Year 8 pupils during a coastal erosion model-making activity, I took care to ensure that no pupil could be personally identified. Before photographing the models “before” and “after” or collecting examples of pupils’ work, I sought their verbal consent and made it clear that the material would be used only for this report. To protect privacy, all records and analyses refer to pupils as “Student 1”, “Student 2”, etc. The collection of pupils’ physical work was also carried out with their permission and stored and used in accordance with the school’s data-protection and confidentiality policies.

Ethical issues and how they were addressed

I was present in the classroom as a visiting trainee teaching assistant, not as the class teacher. Therefore I maintained clear professional boundaries: I guided pupils with their hands-on work but

did not mark their work, share personal contact details or give feedback outside the classroom. Any concerns about a pupil's welfare were to be immediately passed to the designated safeguarding lead rather than dealt with on my own.

Communication and involvement for project success

Before starting the inquiry, I discussed my plan with the professors in Hughes Hall and Beijing Normal University, explaining what I wanted to observe and how I would collect evidence. During the lessons I regularly updated the teacher about which pupils I was supporting and which photos I was taking. This ensured transparency and allowed the teacher to advise me if any activity was inappropriate.

Safeguarding of students and colleagues

I complied with the school's safeguarding, e-safety and data-protection policies: all photos and notes were stored securely, no images were shared on personal devices or social media, and all data will be deleted after the report is submitted. When using colleagues' comments (for example, the class teacher's observations), I anonymised them and sought permission before including them in my draft.

Findings

Overall Observation: A Dual Disconnection

The study revealed a dual disconnection in students' learning: first, between practical model-making and geographical knowledge, and second, between students and the classroom space. These disconnections became especially visible when considering how students engaged - or failed to engage - with dialogue.

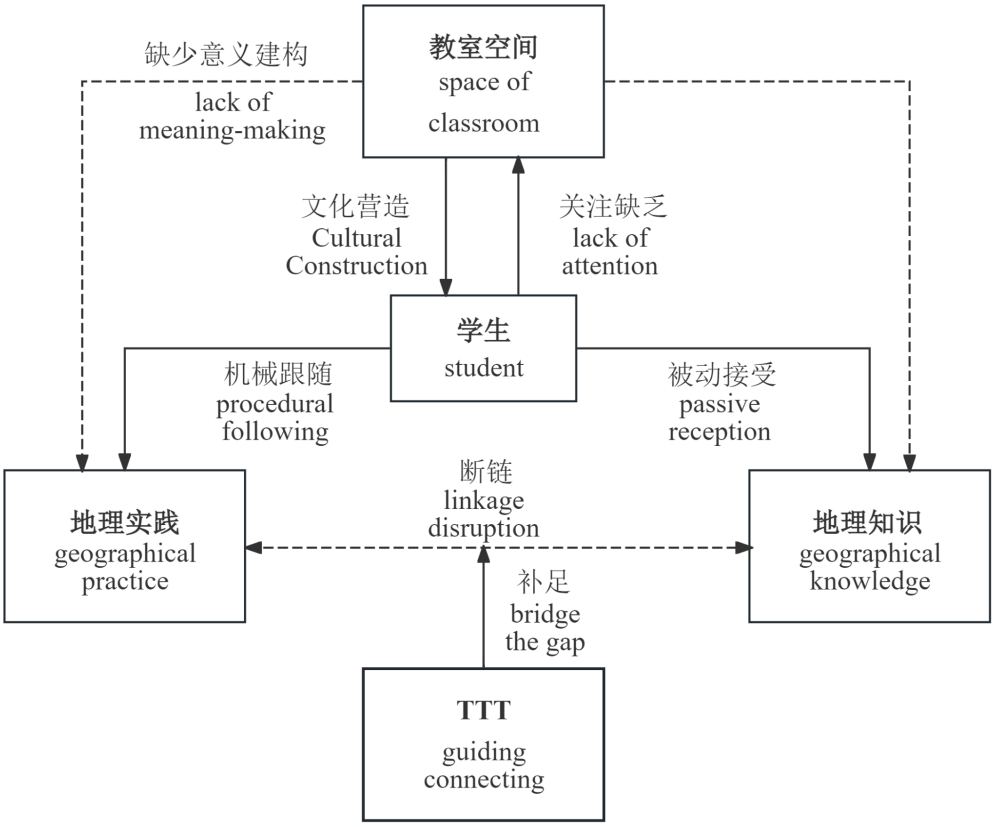

Fig. 8 Conceptual Framework Diagram of Classroom Space, Geographical Practice and Knowledge

Disconnection between Model-Making and Knowledge

Students often followed the steps of model-making mechanically, without recognizing the geographical knowledge embedded in the activity. Yet, targeted use of guiding and connecting tools revealed the potential to scaffold reflection.

In one lesson, for instance, I employed ***G3*** (encouraging thoughtful consideration) by inviting a student to explain the rationale behind cutting black rather than white areas of a model. Rather than directly "telling," I prompted him to recall and reconstruct his reasoning. When he struggled, I used ***C4*** (applying to real life) to link the paper model to real coastal landforms. Through this process, his answers gradually improved, and his subsequent written responses ("fill the gap" exercises) demonstrated higher accuracy.

Another example emerged during a mind-map task. An active student (S5) initially wrote "more people can read and write." By applying ***C1*** (linking to past learning) and ***G2*** (focusing learning progression), I encouraged him to recall the term "literacy rate" and to elaborate step by step: literacy leads to better jobs, which increases tax revenue, thereby supporting development. However, when recording notes, he still fragmented the reasoning, placing "better jobs" and "higher tax revenue" in different parts of the mind map. This suggests that while dialogue enabled the oral construction of a causal chain, students' written practices continued to reflect a habit of listing

knowledge rather than linking it - a habit likely reinforced by teaching patterns that present content as discrete points.

Disconnection between Students and Classroom Space

The classroom environment offered rich material representations - posters, maps, student work, and motivational slogans - but students rarely engaged with them. In many cases, the space functioned only as a backdrop. As students acquire knowledge, they show little interest in the surrounding space and rarely reflect on how their "geographical practice" feeds back into their understanding of knowledge. Their learning and spatial practices - struggle to respond to the cultural production of spatial representations. At the same time, they revealed a discontinuity in the development of students' metacognition.

As mentioned above, without this ***third space***, classroom artefacts remained silent and model-making became a task of compliance rather than inquiry. In this light, the phenomenon of "disconnection" is not simply a matter of students' limited metacognition, but also a spatial issue: the lack of dialogic processes that would integrate material, cultural, and lived dimensions of the classroom. The TTT can therefore be seen as more than a pedagogical tool - it is an attempt to reintroduce dialogue into students' practices, partially activating a ***third space*** where their voices can link practice, knowledge, and space.

Additionally, in some sense, the classroom space's representations are dominated by the teachers rather than students, which makes space construction into monologue as well. Actually, monolog left classroom artefacts and activities disconnected from deeper meaning.

Synthesis: Two Faces of the Same Problem

Taken together, these cases suggest that studying practice (model-making, sheets-completing and so on) and classroom engagement are not separate issues but two faces of the same problem: students' learning remained disconnected from meaning when dialogic scaffolding was absent or superficial. In practice, guiding and connecting strategies enabled partial success, but sometimes could not fully shift students' written practices. In classroom space, the absence of probing questions, the lack of invitation to construct the space of our own left representations silent and students disengaged. Both reflect limited metacognitive development and a lack of discourses through which students might link practice, knowledge, and space.

Potentials and Limitations of the TTT

The Think–Talk Toolbox demonstrated clear potential for addressing the disconnection between practice and knowledge. Specific tools such as G3 and C1 helped students articulate more connected reasoning, while C4 grounded their reflections in concrete examples.

However, the same strategies proved less effective for activating the spatial dimension of learning. Although a handful of students briefly noticed displays, their curiosity soon faded. This suggests that while the TTT can scaffold the cognitive link between knowledge and practice, additional dialogic approaches may be needed to foster students' engagement with classroom space as a site of meaning-making.

Changes to practice

Before entering School C, I reviewed the students' curriculum and standards and initially identified the practical issues I wanted to address and the conversational strategies I might use. However, at the beginning of my placement, I realized that given their learning schedule, they would not reach the topics I had planned before my departure. I therefore adjusted my approach: rather than intervening directly, I began by observing lessons, noting teachers' actions and language, and paying attention to the classroom - especially students' learning states, patterns of cooperation, and the overall logic of instruction.

The lesson that became the focus of this study happened to be a model-making session. I noticed differences in students' paper-cutting skills and in the way they responded to questions, so I followed this aspect more closely across several lessons on the same day. At one point I observed a pupil using an incorrect paper-cutting technique; with his permission, I collected his first unsuccessful attempt and recorded his successful work on video.

During evening discussions with my supervisor, I realised that what I had observed was quite interesting but still rather superficial. When he offered other examples to inspire me, it struck me that I could do much more. This led me to formulate the key question mentioned above: how can students connect practice with knowledge?

Afterwards, I began adopting more strategies, asking students to explain the principles behind their geographical models and, based on their answers, gauging both their understanding and the effect of my dialogue. By the end of the third week, I had completed a first draft.

In our penultimate meeting, my supervisor's comments on text-analysis methods and on the "interesting stories" I had collected gave me new insight. I began to wonder: could I combine the "dialogue" I was studying with the "space" I was exploring? After all, students' practices take place within space, and their knowledge is also constructed within it. From there, this article gradually took shape.

I believe that my research - or rather, my observations and findings - can be replicated. If a school adopts a classroom-rotation system and its classrooms have a certain degree of design, the "question of space" may yield different answers. For students, overlooking the connection between practice and knowledge while their metacognitive abilities are still developing is also quite common - at least in China, and in my own experience, this phenomenon clearly exists.

Implications for future practice

This inquiry, although small in scale, has clarified several ways in which my future geography teaching can be strengthened. First, the findings show that hands-on model-making requires more than procedural guidance; students need structured prompts that connect each step to the underlying geographical process. I therefore plan to build in short "pause-and-explain" moments during practical activities and use questioning prompts that encourage students to articulate why an action is taken, not just what the action is.

Second, the study highlights the importance of supporting students to engage in meta-questioning - reflecting on the assumptions behind their own questions.

Finally, the inquiry reinforces the value of designing classroom spaces and resources that invite interpretation rather than passive viewing. In my future practice, I intend to create geography learning environments that encourage students to interact with displays and models, turning the classroom into a more dialogic space.

References

杨颖, 孙亚玲, & 孙俊. (2016). 国外教育地理研究回顾与借鉴. 世界地理研究, 4, 144.

Brenner, N., & Elden, S. (2009). Henri Lefebvre on state, space, territory. *International Political Sociology*, 3(4), 353～377.

Butler, A., & Sinclair, K. A. (2020). Place Matters: A Critical Review of Place Inquiry and Spatial Methods in Education Research. *Review of Research in Education*, 44(1), 64～96. https://doi.org/10.3102/0091732X20903303

Collins, D. (2006). Culture, religion and curriculum: Lessons from the 'three books' controversy in Surrey, BC. *Canadian Geographies / Géographies Canadiennes*, 50(3), 342～357. https://doi.org/10.1111/j.1541-0064.2006.00145.x

Ji, Y., & Hennessy, S. (2024). *Think-Talk Toolbox: Cultivating Transversal Skills through Inquiry and Dialogue*. Cambridge Teacher Research Exchange (Camtree), Cambridge.

Jørgensen, C. R., & Allan, J. (2025). Our school: Our space – inclusion and young people's experiences of space within an English secondary free school. *International Journal of Inclusive Education*, 29(2), 154～174. https://doi.org/10.1080/13603116.2022.2073059

Latour B. (1999). *Pandora's hope: Essays on the reality of science studies*. Harvard University Press.

Phillips, M. P., Smith, D., Brooking, H., & Duer, M. A. (2023). 'Everybody loves living here': Beyond the idyll in life within the gentrified countryside. https://www.manchesterhive.com/downloadpdf/display/9781526161642/9781526161642.00012.pdf

Soja, E. W. (1998). Thirdspace: Journeys to Los Angeles and other Real-and-Imagined Places. *Capital & Class*, 22(1), 137～139. https://doi.org/10.1177/030981689806400112

Thiem, C. H. (2009). Thinking through education: The geographies of contemporary educational restructuring. *Progress in Human Geography*, 33(2), 154～173. https://doi.org/10.1177/0309132508093475

Tupper, J., Carson, T., Johnston, I., & Mangat, J. (2008). Building Place: Students' Negotiation of Spaces and Citizenship in Schools. *Canadian Journal of Education/Revue Canadienne de l'éducation*, 31(4), 1065-1092-1065-1092.

Valentine, G., Holloway, S., & Bingham, N. (2002). The Digital Generation?: Children, ICT and the Everyday Nature of Social Exclusion. *Antipode*, 34(2), 296～315. https://doi.org/10.1111/1467-8330.00239

Zhang, M. (2022). Creating an ethos for learning: Classroom seating and pedagogical use of space at a Chinese suburban middle school. *Children's Geographies*, 20(2), 129～142. https://doi.org/10.1080/14733285.2021.1916437

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