

Critical thinking for achievement CPD

Gemma Mawdsley

As a mother of young children I lose count of the number of times each day I am asked, in a range of different contexts and applications, 'But why, Mummy?' – and I love it! The enquiring minds of young children are incredible constructs, inspiring a real, innocent fascination for the world.

As a passionate geographer, I often wonder when we lose this desire to ask questions and just want to be told the right answer. And as a teacher, while it is flattering to be 'the font of all knowledge', isn't it refreshing to be challenged: 'Where is that information from, Miss?' 'Why is that data set significant, Sir?' 'What would be the impact of ..., Miss?' The effect of this interrogation on students' depth of knowledge and understanding and their ability to apply information, rather than rote learn and regurgitate, cannot be underestimated. And with changes to assessment models, never has critical thinking been so important: we must encourage our students to think, challenge preconceptions and apply newly acquired information.

Critical thinking

A succinct definition of critical thinking is elusive. Geographers, for instance Margaret Roberts (2013), cognitive scientists, for instance Daniel Willingham (2007) and educational theorist John Dewey, writing over a century ago (Dewey, 1909), have all described it in different ways. David Lambert (Lambert et al., 2004) put it simply: '... critical thinking involves recognising that "things are not always what they seem to be", or "there's more to this than meets the eye"'. Critical thinking is neither an isolated skill, nor a generalised way of thinking. Rather it combines capability, the tools to think more deeply, and the curriculum context in which to apply them. It is not a generic skill: it needs unpicking. Once we understand all this, we need to consider it in the context of our students. Practising critical thinking systematically in geography lessons makes it more likely that when they encounter unfamiliar contexts, for example forming an argument about a geographical problem, students will pick up contextual cues suggesting which strategies to use. Faced with examination command words such as 'evaluate', 'assess', 'discuss' and 'examine', students who have acquired critical thinking skills will be able to explore perspectives, confidently identify anomalies in data and debate answers before drawing a conclusion. Developing these skills, and allocating time in the curriculum to rehearse them, is fundamentally important if students are to attain the higher levels in examination mark schemes. They are also useful skills for life: perspective, and the ability to critically

interrogate the media, are vital as we debate issues such as Brexit. Critical thinking is made up of three key components:

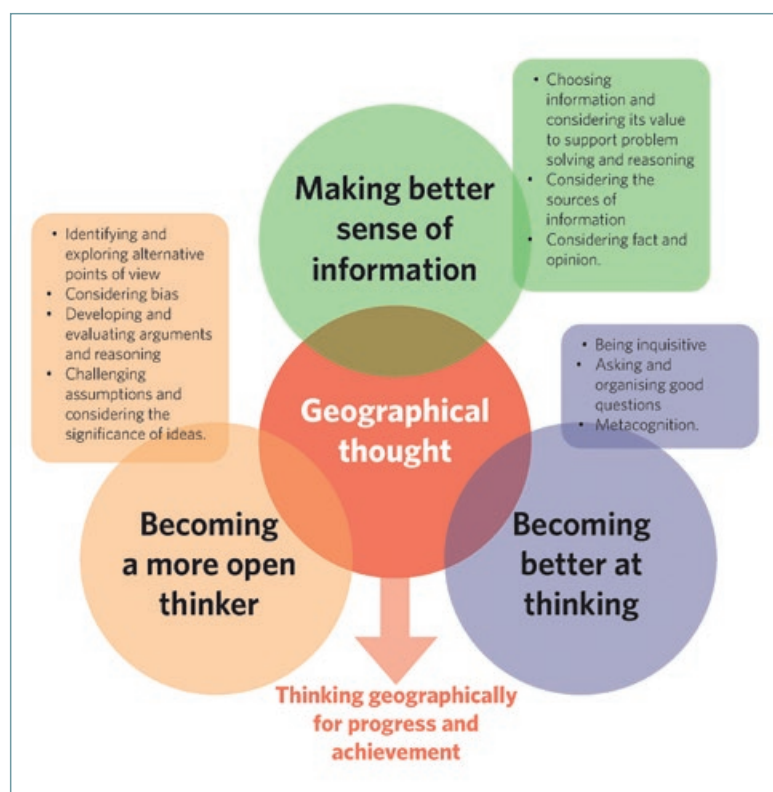
- becoming better at thinking
- making better sense of information
- becoming a more open thinker (Figure 1).

When applied to assessment objectives AO2, AO3 and AO4, it is clear how significant critical thinking is in creating an environment in which students have the breadth and depth to question all aspects of a geographical issue.

Gemma outlines the rationale of the GA's 'Critical thinking for achievement' CPD programme and describes strategies which have been successful in schools.



Accompanying online materials



How do we create opportunities for students to 'think critically'?

Before we expect our students to 'think critically' of their own accord, we need to give them a structure in which to do it. The GA's 'Critical thinking for achievement' CPD programme is a two-day course that follows a 'Plan-do-review' model and provides teachers with the strategies and techniques to develop their students' critical thinking skills. Having run the 'Plan-do-review' CPD in a number of schools I have been inspired by how the strategies and techniques have been applied on a practical level with the students. The examples that follow describe how two teachers have applied in the classroom what they learnt in the programme.

Figure 1: The three components of critical thinking applied to geography. **Source:** Geographical Association 2019.

Case study 1: The 'flat chat' technique

Flat chat involves presenting groups of students with a stimulus (image, graph, data set, question) and, without discussing it, each student must write their comments about it on a large sheet of paper. As the paper moves around the group, students can reflect on each other's comments; then the paper is passed to another group. By removing external pressures and influences, flat chat encourages all students to make

uninhibited, anonymous contributions without the need to discuss what is recorded on the sheet. They can take risks and be open-minded, recording anything they think is relevant to the stimulus.

Claire used the flat chat technique suggested during the CPD to good effect, raised her students' attainment and equipped them with the skills and confidence to cope with the demands of the higher-mark questions.

Case study 1

Claire Cooper from Meols Cop High School in Southport gives this account of how she used the 'flat chat' technique.

Over the past year I have been working on developing students' geographical vocabulary, with a focus on tier 3 vocabulary, to improve both their understanding of geographical processes and their exam performance. As well as embedding the vocabulary in students' long-term memory, it was clear that they needed to be able to think critically about how and where to use it.

Time constraints mean teachers hand out the information students need rather than the students developing their thinking skills so they can find it out for themselves. Even higher attainers want to be given the information, meaning they stay at level 2; level 3 requires a higher level of critical thinking. So in exam conditions, if the questions aren't phrased exactly as in class, students are not equipped to adapt what they have learnt to come up with an appropriate answer.

Some of the strategies discussed on the GA 'critical thinking' course have been invaluable to my research and pedagogy. They make the students think about the vocabulary they need to use, encouraging them to think critically to find those tier 3 words in their long-term memory. I have seen fantastic results.

Before

The exam question (Figure 2) is designed to elicit evidence of deeper understanding of the difference between command words and key words. Students had some understanding of what the question is asking for but were unsure what content to use. One student did not attempt the question. Most wrote a few sentences but offered only limited information.

(d) Study Figure 3b in the Resource Booklet.

Examine the role of different **physical processes** in the formation of the meander shown in Figure 3b.

Figure 2: An example of a question that students had difficulty in answering.

Flat chat

Flat chat encourages students to focus on what they see and think about the vocabulary they could use to describe it. It builds resilience and helps them make sense of information (understanding concepts – A02), become open thinkers (applying knowledge – A03) and better thinkers (select, adapt and use skills – A04).

In flat chat every student has a voice. If you give them different coloured pens you can check their individual thinking and progress. As you move groups around the tables, you start to see different perspectives through the vocabulary they use to describe the image they are investigating.

LO: to know how river landforms in the upper course are formed

What's your plan?

What is the question asking?

What will you explain first? Why?

<https://timeforgeography.co.uk/videos/list/rivers/formation-waterfall-gorge/>

Study Figure 16, a photograph showing the waterfall at High Force on the River Tees.

Figure 16

Click to Reveal Question

Less / More resistant rock, Overhang, Plunge pool, retreat

Figure 3: The exam question is hidden, so students must think critically and focus on higher-level vocabulary.

Techniques like flat chat give students the confidence to attempt a question or use a resource even if they don't fully understand the question or have never seen the resource. If they can simply describe what they see they can get marks.

After

In the year 10 mocks (February 2019) students showed greater confidence in answering questions, yet they were still not achieving level 2 and above in the 8-mark questions (Figure 4). I incorporated the above strategies into my lessons to focus on vocabulary.

Four weeks later (March 2019) I gave the students the same questions and looked at their answers for evidence of them using the techniques in class. The red text is their attempt at the question after using the flat chat technique.

(d) Study Figure 2b in the Resource Booklet.

Examine the role of different physical processes in the formation of the meander shown in Figure 3b.

that destructive waves is part of physical process because it can destroy the land by coastal erosion, example abrasion, hydraulic action which moves material along the sea.

magma has got some things to do with forming a bar, because the magma cools and goes hard and that forms land and beaches. And as that prevailing waves cause the material to be deposited on beach because the prevailing waves wash the material out to sea.

When the sediment reaches the beach change in the coastline it is deposited the long thin ridge of sediment is a spit. When the spit continues to grow across a bay to join two headlands together and forms a bar as seen in Figure 2b. Bars trap shallow lanes behind the bar, these are known as large lagoons. After a period of time the lagoon may also be filled with sediment along the beach. A spit is an extended stretch of sand or shingle jutting out into the sea from a land.

Figure 4: Before and after using critical thinking strategies.

Case Study 2

David Bill from Hillside High School, Bootle, used question generators to develop critical thinking skills in an international context.

Every year I am lucky enough to visit CSG Liudger in the Dutch province of Friesland. In the school's bilingual stream students are taught half their lessons in English. They must also have experience working with a native English speaker, which explains why I was there in early April asking year 9 students to create a tour guide outlining the delights of Liverpool.

In the 'Critical thinking' CPD we had looked at question grids, and I had thought them a great way of stimulating understanding and engagement through focused question construction. Following the CPD we experimented with a few ways of encouraging students to ask higher order questions.

Under the watchful gaze of their class teacher, the Dutch students worked in pairs to examine the transformation of

Liverpool's Albert Dock from a derelict 1970s wasteland to the wonderful learning resource it is today. Although it was not essential to fill in the whole grid, many students took up the challenge, creating even the most difficult compound questions and developing a feel for the challenges facing the planners during the redevelopment of the former dock area (Figure 5).

At the end of the session students were asked to select the three best questions. Motivated by their ownership of the questions they researched answers, and the results were impressive.

Break time came, and word quickly spread around my Dutch colleagues. 'Where had I got this wonderful new way of introducing a new topic?', and 'Could we have copies?'

I was too honest to do anything but give the credit to Gemma, our GA consultant; and of course I name-dropped the Geographical Association. As to the lasting impact of the strategy, I will hopefully find out on my next visit.

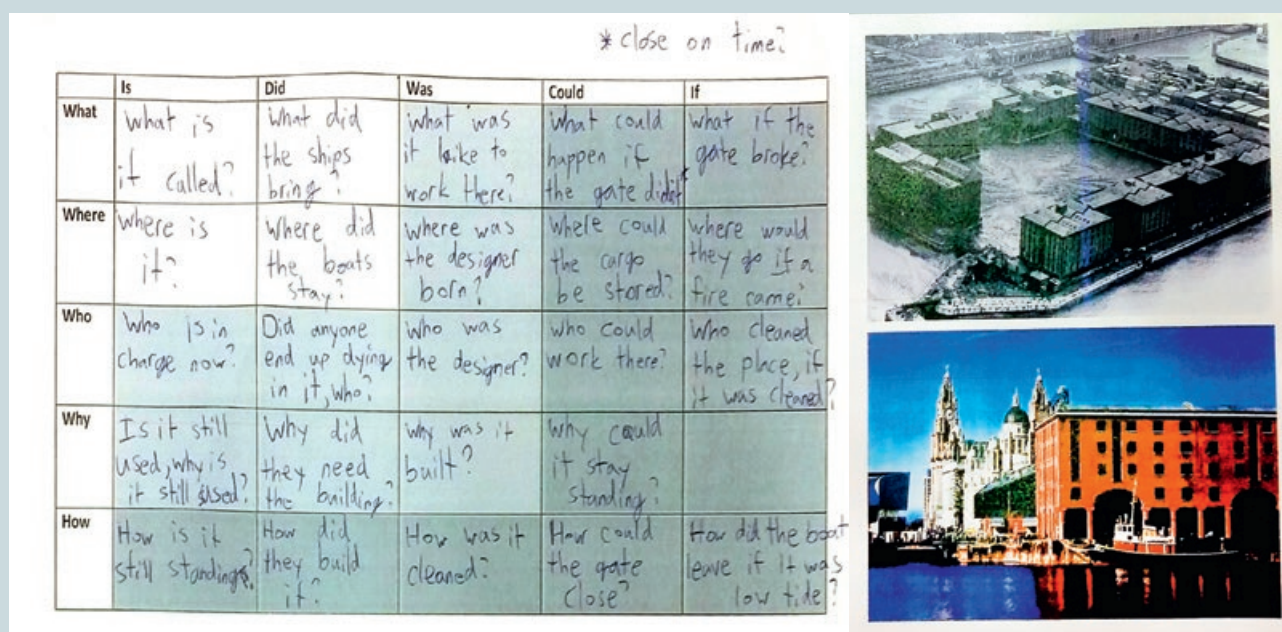


Figure 5 : A completed question generator using the regeneration of Liverpool's Albert Dock as a stimulus.

Case study 2: Question generators

Question generators, or grids, are frameworks which help students to ask better and deeper questions as part of an enquiry. The framework gives students presented with a stimulus a scaffold to enable them to devise questions about it.

Conclusions

Teachers have found these strategies both powerful and easy to implement in the classroom. The CPD experience has enabled them to teach quality, contemporary geography

lessons permeated by the cognitive skill of critical thinking. Applying this skill, learnt in the classroom, will shape the ability of future generations to engage with an ever-changing world by refining their ability to think and question critically.

The CPD is available until March 2020. It is aimed at priority schools (primary and secondary schools with Ofsted category 3 or 4) and schools within priority areas (Department for Education category 5 or 6 and Opportunity Areas). Please contact Julie Beattie (jbeattie@geography.org.uk) for further information. | **TG**

References

- Dewey, J. (1909) *Moral Principles in Education*. Cambridge, Mass: Riverside Press.
 Lambert, D., Morgan, A., Swift, D. and Brownlie, A. (2004) *Geography: The Global Dimension*. London: DEA.
 Roberts, M. (2013) *Geography Through Enquiry*. Sheffield: Geographical Association, p. 125.
 Willingham, D.T. (2007) 'Critical thinking: why is it so hard to teach?', *American Educator*, Summer 2007, pp. 8–19).

Online resources

Another example of the impact of using critical thinking strategies is available online. Go to www.geography.org.uk/journals/Teaching-Geography and select Autumn 2019.

Gemma Mawdsley is a Consultant to the GA on the 'Critical thinking for achievement' project. She is also an SLE for the Wade Deacon Trust, Cheshire, supporting teaching and learning in the Humanities, and a MITA reviewer and Accelerate Coach.

Email: gemma@mawdsley@gmail.com