

Teaching Skills in Geography

Strategies, reflections, breakthrough and a mapping activity

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Skills are one of the most difficult topic areas to teach in geography. This is because there is a diverse range of student capabilities, they require a variety of different cognitive functions, they involve a mixture of different tools to use such as the calculator, ruler, dividers, compasses for the drawing of maps, diagrams, tables and for multiple combinations of skills in single questions. We also have teachers not trained in geography or the teaching of geography.

Invariably students do not have all the equipment and as the teacher you have to produce alternatives in the classroom like asking students to pull out pieces of their hair or shoelaces to measure the length of a meandering river. Also, there is the sharing of rulers, pencils, and gear which interrupts the flow and concentration of students in the room.

Coupled with gear issues is the difficulty of scope and sequencing the teaching of skills and the practicing of skills for speed and accuracy. Especially when the goal is to teach skills in a manner which maintains student retention of how to complete skills.

Strategies for Teaching Skills

There is a pathway through.

I have tried almost every combination for the teaching of skills. My motivation is to reduce the perceived difficulty of skills being a factor contributing to students not picking geography in Stage 6.

One approach is the **teaching of skills within the teaching of the content of the course** such as population pyramids during Global Challenges, transects during the SGP in the local area or semi logarithmic graphs during Urban Places. This approach has its merits but **lacks the repetition required for retention** in a student's long-term memory.

With this approach the student tends to remember the content of the course, not the skills. For example, the student remembers the facts like low rainfall in a desert

area of Australia, rather than the skill of the drawing of the climate graph and the correct labeling of columns and lines in the graphs.

My preference is an alternate approach called **Skills Friday** – or the last lesson of the week depending on the timetable. What does this look like throughout the year?

At the beginning of Year 11 in the first term there is a systematic treatment of the teaching of skills every Friday. I work on the principle of prior knowledge, auditing what students know and then explicitly teaching the higher order skills.

Depending on the nature, attitude and motivation of the students I might mix up a difficult skill in one week like vertical exaggeration, gradient or some statistical manipulations like percentage changes. In another week I work on repetition of hopefully easier skills such as grid and area references, direction, bearings and locating places on maps.

In **Term 2 Skills Friday** becomes SGP Friday. Here the focus is on the stages completed in the SGP over the term. We start with a plan of investigation, developing a research question followed by research and planning.

This is followed, in the middle weeks of the term, with techniques of data collection in which students bring in the photos taken of their fieldwork area and some field drawings. In the last third of the term the focus shifts to collation of the data. Transforming of the data into format that can be presented in the final report, due in Week 3 Term 3.

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Skills Friday returns in Term 3, the last term of the Preliminary Course. The focus is HSC practice papers. Some of us have been teaching this Geography syllabus since 2001. So, with the Catholic and the HSC papers there are forty-two examination papers of skills that the students can do.

In Term Three every student completes one examination paper of skills each week. This repetition is crucial for two reasons: to build confidence that they can do the skills and secondly it provides an orderly manner where students can improve their skills for retention.

Throughout the term I focus on two things – **accuracy and speed**. Accuracy in the earlier days. I point out to the students that I give them two hours to do twenty multiple choice questions, most would get full marks. Next, I introduce the second concept of speed. Unfortunately, students do not have two hours to do the twenty multiple choice questions so my mantra towards the end of Term 3 becomes speed and accuracy.

In the HSC year the **language shifts from Skills Friday to HSC Technique Friday**. In Term 4, the start of the HSC Course, the focus is on building an understanding of the syllabus points. This requires the explicit teaching of how to link the syllabus points to the content examined.

Now I am providing the roadmap of the course content being taught. Usually in the form of mind maps and flowcharts. Once there is depth of knowledge there is an explicit focus on the writing of introductions, conclusions, short answers and eventually extended written responses.

In Term One in the HSC year, I bring out the next series of HSC multiple-choice skills questions. The goal is to see how much of the skills that have been learned on an ongoing basis throughout the Year 11 coursework has been retained in the long-term memory.

It is usually clear what has been retained but often there are identifiable common weaknesses. These usually relate to students' specific skill 'blocks', even skill phobia. For example, statements like "I can't do gradients" indicates I need to be more explicit in my instruction. Sometimes the issue is not the skill retention but the process such as using the calculator. Students enter numbers the wrong way around and then get confused with the numbers in relation to decimal points.

The **HSC Technique Friday**, through Term 2 and 3 of the HSC year, is a combination of skills, multiple choice technique and short answer and essay writing. This

involves breaking the component parts into drilling introductions, the essay body, conclusions, use of stimulus materials and application of key terms to geographical knowledge. Of course there is the explicit teaching of the NESA Glossary of terms.

Reflection on the strategies

There are a few ways to teach skills but two of the most obvious are firstly the **direct teaching of the skill** itself and then the **repetition of the knowledge learned** to embed the understanding in the long-term memory. Secondly, skills can be taught in context with the content we are delivering in the classroom at a point in time throughout the courses.

Skills tend to stay in the short-term memory when they are taught in bits and pieces over a period of four or six years depending on if the student takes Stage 6 Geography. Careful consideration needs to be made in how skills are taught, based on several factors.

As a teacher it is crucial that you are confident in teaching skills and if you have weaknesses, improve them. One of my many achilles heels, for example, is that I finished my schooling the year before calculators were introduced. I have had to develop a strategy of arranging friends for students to show other students how to use the calculator. Fortunately, on most occasions I can get to an answer in my head while they are working out the function buttons on the calculator.

Then there is the dynamic of the classroom mix to consider, including the students' attitude, aptitude and capacity to improve the learning of skills. Small student numbers lend themselves to better teaching of skills because it enables you to provide one to one instruction, feedback and follow up.

In classes where there are numerous students there is often a range of abilities. This is where you need to develop some tricks of the trade. For example, when do you bring the whole class back into focus or when do you run around the classroom answering the same question multiple times? The latter is more effective for retention than the former but more time consuming.

For example, when it comes to area and grid references my go to instructions are "bottom of the page before the side of the page." This is where my goal is the student getting the answer correct – understanding of Eastings and Northings sometimes comes later once the student is satisfied, they can get the answer.

Unfortunately, the anxiety comes from not getting the solution rather than the process. Accordingly, sometimes I work on understanding later.

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The Breakthrough

These verbal tricks I developed have proved to be the breakthrough I needed, particularly in the teaching of skills in Stage 4 and 5. I discovered as I was walking around the room, I got better at **verbalising little tricks** to help students remember the process. This confirmed there is the capacity for skills to be better taught through the process of verbalising and listening, prior to doing. Below is one strategy which has had some success.

In the teaching of drawing of maps in Stage 4 I started to do an activity which involved students listening to instructions to draw a map. Many of us get our students to draw a map of a classroom or a room in their house. This develops an appreciation of space and the relative location of unique features in place, hopefully to some sort of scale.

A variation of this is to get the students to write up instructions of what a room(s) looks like and ask a peer to draw the space from their instructions. I have also tried the same approach where students provide instructions on how to get from school to home and the students have to work out where they live.

The **visualisation process** of understanding place, space and scale is especially important because it provides the foundation of so much more down the track. It becomes clear that verbal instructions are important, but the verbal instructions need to be

repeated because of students' capacity to listen. This is where the writing of instructions is crucial.

The **writing of instructions** improves the outcome of drawing accurate maps. Also, the reading of instructions or listening to them on a recording has proven to be a creative way to get the students to engage with space and place in the skill of map or field sketch drawing.

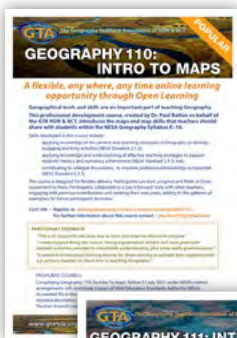
For example, I came across this approach many years ago in Bowral when I wrote out instructions on how to draw through my house. During this process students had to visualise and draw a bird's eye view map by listening to or reading my instructions. It was interesting to see the assorted designs in my house compared to what it looked like.

This was a breakthrough in my teaching of map drawing. The students were able to engage with the skill of understanding of space and place through a different medium.

Over the years the approach has been refined. For example, Susan Vega's song Tom's Diner has a version with music and one without music with just these words of the song. This latter version creates an audio of a scene of a person sitting inside a café looking out the window. It describes the scene so well that students can sketch the scene accurately.

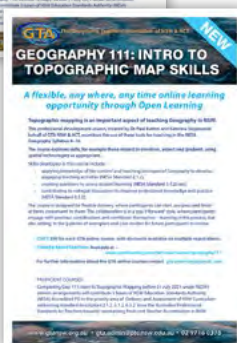
When I have done this as an activity it has been popular and engaging. It would be a good starting activity prior to attempting the following mapping activity.

Open Learning Courses for Mapping Skills



GEOGRAPHY 110 – Introduction to Mapping

This professional-development course introduces the maps and map skills that teachers should share with students. Through completing the learning activities in this course you should become more confident about including a range of map types and introductory map skills in your lessons.



GEOGRAPHY 111 – Topographic Mapping Skills

Through completing this course, you will better understand topographic maps and related map skills that can be used in the K-12 Geography curriculum.

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