Engaging complex geographical issues: An evaluation of mind mapping as an interactive learning tool

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Publication details
Students of geography are in a very fortunate position. Not only are they exposed to an immensely rich and varied knowledge base, but they also have exceptional opportunities for developing information handling and problem-solving skills through visualisation. … Effective learning is encouraged by presenting students with a situation that demands explicit visualisation …. Data visualisation and graphical representation have always been fundamental in geography. It is an effective process for simplifying … the bare-bones of complex problems and enables students to begin to understand the … processes involved.

(Gardiner & Hughes, 2000, pp. 38-39)

Background
★ Role of visualisation & graphic communication in geography education
★ Dominance of verbal/written over graphic
★ Geography education: impacts diversity of learning styles, spatial cognition …

Observation (Mullen, 2000): “drawings, dialogue, collage and painting provide opportunities for questioning taken for granted perspectives in educational research using creative forms to give ordered expression to personal feelings, imaginative ideas, and topics of concern”

Summary of talk
★ Introduce mind mapping
★ Case study: The sequential introduction of mind mapping to university students
   - Research / research supervision
   - Community-based development
   - Final year undergraduates
   - First year undergraduates
★ Evaluation of our experience

The Mind Map
Based on the work of Buzan, T. & Buzan, B. 1996.
Let's look at an example

This adds:
- Interest
- Beauty
- Individuality

... and...

This aids:
- Creativity
- Memory
- The recall of information

By printing them you naturally EMPHASISE THEM.

Key Words should be PRINTED on curved lines flowing from the central image. These lines should be the same length as the words.
Pedagogical issues
★ Works across cultures
★ Effective where language difficulties arise
★ Effective for communities with an oral tradition
★ Effective with students that have problems with a linear text based environment
★ Reductionist content focus in teaching
★ Transition from “scientific” thinking to “social” thinking

Application to undergrad teaching: 1. Final year
★ Third year Environmental Management students … management issues base
★ Focus on problem solving
★ Immediacy of problem solving … real time example
★ Detailed discussion of process of mind mapping

Application to undergrad teaching: 2. First year
★ First year Environmental Management students … introducing issues to science students
★ Introducing the technique
★ Focus on complex information synthesis
★ Reporting of article content

Student feedback
★ Highly satisfied with functionality and simplicity of the technique
★ Recognise significant advantage over linear note taking for recall and creative thinking
“When introduced to mind mapping … I could not understand why such a useful skill was not taught at the beginning of my degree and rather than at the end. I now use mind mapping when taking notes as I can start organising the material in my head immediately.”
Examples of novice mind maps

Student feedback
★ Liberating for those with difficulties in a traditional linear based thinking
“I was sceptical when David and Kristin first started talking about this but when we applied it to solving the oil spill issue I saw how quickly we were able to work out what to do and who should do it. The process involved the whole group, including the ones who often hang back and it was amazing to see how we all knew how everything fitted together. I always had trouble seeing the big picture and this has given me a skill to help bring it together pity I learned this so late in the course.”

Student feedback
★ Continued use by students
★ Confident presentations to large classes by “novices”
★ First year exam: enhanced student performance using mind maps over essay frames and prose
★ Exam: much improved student communication of what they know and understand

Exam performance

Was it all perfect?
★ No, mind mapping is not for everyone
★ Significant minority felt that a linear approach better reflected their approach to understanding and problem solving, particularly those with a technical bent
Conclusion: mind mapping...

- ... works with process and relationship content well in geography learning
- ... is only one option in a suit of teaching tools
- ... is good for note taking and analysis
- ... helps promoting collaborative & active learning
- ... supports students struggling with linear thinking
- ... provides link between complex (non-linear) issues and different learning styles

... and

- Context is important
- *Less is more* in promoting collaborative learning
- Mind mapping transforms the tutor to the “guide on the side rather than the sage on the stage”

... and just a hour and a half ago ...

“Look at my hat,” said Mr. Hat.