What visual tools
can and can't do

Steve Williams explores the reasons why visual tools are so useful for teachers and pupils. What jobs do they do best?

Visual tools are undoubtedly useful; but what are they useful for and when must we look to other kinds of tools to help us think and make meanings? Here is my summary of what visual tools can and can't do. You can add to it or disagree with it if you like and I hope you will. Think for yourself about how you would like to use visual tools. Think about the alternatives to visual tools and question other people's opinions about them – particularly if they sound like they are not meant to be questioned.

What visual tools can do

1. Show the big picture. Tony Buzan's MindMaps (similar diagrams are Model Maps and Ideas Maps) are very effective at showing all aspects of a topic very clearly so we can take it all in at a glance. This makes the MindMap a great tool for remembering and for gathering together ideas. My MindMap of the PSHE curriculum at Key Stage One (Fig 1) has been tremendously useful to me as a tool for seeing patterns and possibilities for curriculum development. It seems natural to construct a MindMap like a radiating tree diagram with hierarchical levels of classification (eg, living thing, animal, cat). If you do this, it is sometimes difficult to make meaningful connections across categories without using a coding system, writing additional notes or doing other associated MindMaps. Design is important. The prettier your MindMap, the more you will want to return to look at it and therefore the more you will be prompted to think, talk and write about the relationships you have drawn. This is essential because having a big picture is only useful if it helps you to make meanings. A list of headings and subheadings has limited value, no matter how 'big' the picture.

2. Hold thoughts fast. Thoughts fly through our minds at a tremendous rate and we often need to record them quickly so as not to forget them. The humble unstructured list should not be scoffed at for this purpose. We can use lists to record key words and snippets of sentences that impress themselves upon us. Don't believe the bad publicity that lists have in some quarters just because they are not deemed to be 'visual' enough. Lists can be ordered later by repositioning list items on the page or by using more structured tools such as affinity diagrams and more visually appealing ones such as MindMaps. If your thoughts are really whizzing along, then MindMapping from the start can be is useful because the key words, designs and associations you choose may jog your memory as you review the MindMap and enable you to write longer notes or develop your ideas more fully later.

3. Focus thinking. Some visual tools focus thinking on a particular kind of relationship. Venn diagrams, for example, focus our attention on finding similarities and differences and on classifying. Fishbone diagrams focus attention on multiple causes leading to an effect. These visual tools and many others can transform the thinking of students by helping them to understand the essential relationships with which to structure their world. Classifying makes sense if you can see a class as an area with boundaries.

The tools also assist the process of *systematic* connection-making because when we use diagrams we can list connections quickly and easily in the process of a search.

We don't always need to provide visual tools for pupils. Once they have understood an essential relationship such as similarity, they will be able to do without the tool in many situations.

4. Encourage children. Oliver Caviglioni (in this edition) is right to say that some children find that *expressing* connections is *harder* than identifying them. By using visual tools, you can try to convince students with low intellectual confidence that they are not lacking in any innate connection-making capacity (ie, intelligence). You remove a barrier to their developing as learners.

5. Stimulate speaking and writing. Visual tools are useful because they often prompt pupils to articulate their ideas through speaking or writing. Visual tools assist pupils in forming the words and sentences to express their connections *(or rediscovering words that passed through their minds when they were drawing the connections in diagram form)*. When pupils try to explain their MindMaps they are challenged to discover if their connections really make sense and are significant. This often leads to new thinking. Say for example, they have a MindMap on
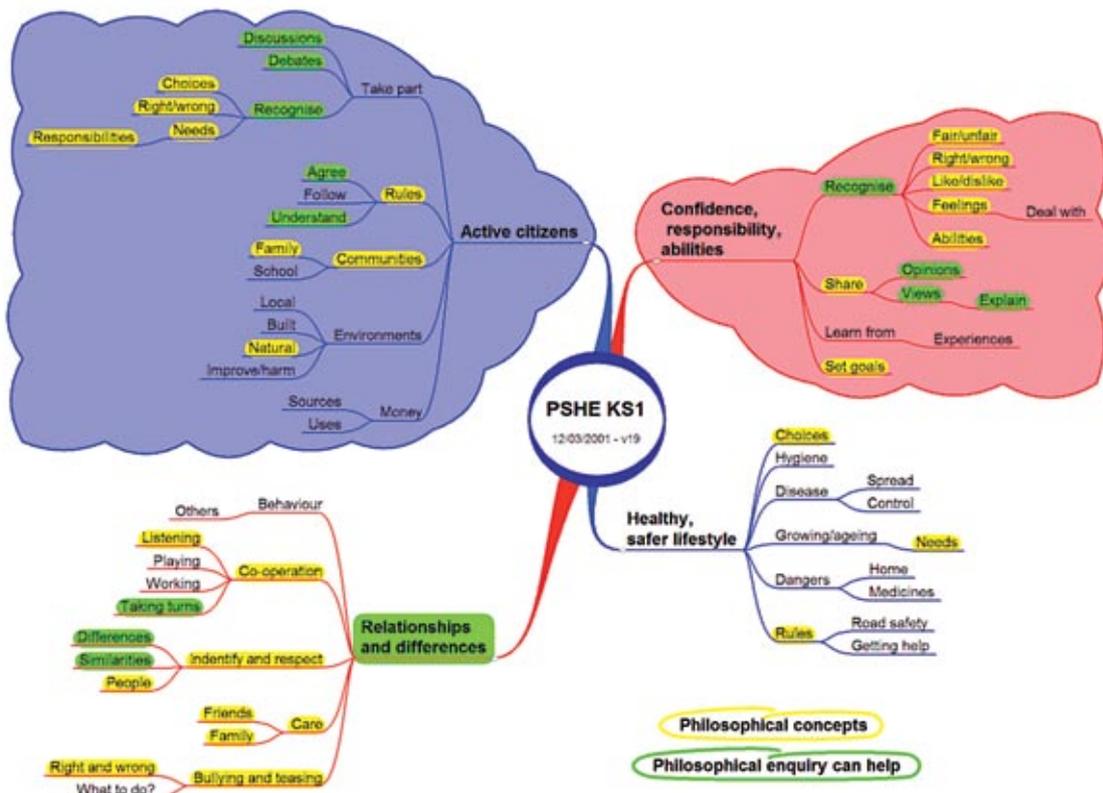
'The Romans' with categories on aspects of Roman life. One section may have a category on *weapons* including *swords, spears* and so on. But what does this tell us that is significant *about the Romans* other than that they had weapons of different kinds? What will pupils find to say about what made Roman weapons a significant factor for their success in battle? Perhaps Tony Buzan had a point when he valued MindMaps based on 'associations' as well as on strict categorisations or 'triangles of meaning'. A connection from WEAPON to SWORD to *SUCCESS(?)* would prompt discussion about something significant.

What visual tools can't do

1. Provide an alternative to 'linear' thinking. Oliver Caviglioni and others argue that visual tools provides and alternative to 'linear thinking'. By their definition, linear thinking seems to involve constructing clauses in ones mind, aloud or on paper. But surely the construction of visual tools often interacts with bouts of thinking or talking in clauses or at least skeletons of clauses. In the Roman example above, we connect SWORDS to SUCCESS and then possibly to STRENGTH because we know that the swords helped the Romans to be successful in battle because they were stronger that those held by the Romans' enemies. We might also know that the short Roman swords were good for fighting is restricted spaces. Without those kinds of thoughts, our link makes little sense. The problem is that the thought involves more than one kind of connection making; we are not just categorising but also finding causes and comparing. Would we need three different visual tools to express the same meaning conveyed in a couple of sentences? How would we link the meanings contained in each tool? Wouldn't we be wasting energy using visual tools for this job? For me, the idea that visual thinking provides a more inclusive alternative to 'linear thinking' is a simplification. Visual tools can help pupils to work on their syntax and vice versa. Visual tools challenge pupils to experiment with sentences to express and elaborate on the meanings they had in mind when drawing a diagram.

2. Replace speaking and writing. Some connections and meanings can't be rendered easily in diagrammatic form. They have to emerge during the composition of speech or writing. In fact a written sentence is, in itself, a kind of visual tool (reading and writing are surely visual and kinaesthetic activities). When writing a sentence you try to make meaning. Then you *look* at the meaning you have created and *see* if it has developed your thinking. If it hasn't, you can change the words and the syntax until you make sense to yourself and others. This is, perhaps, what L.P. Hartley was referring to in his famous quote: 'How can I know what I mean until I see what I say.'

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