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Reflections in Excellence

Forsyth Consulting Group

Visualizing Conceptual Landscapes

Researchers have often wondered about how the human mind works so as to better understand how we can think more effectively.

In evolutionary terms, something enabled humans to develop what is known as the ‘cognitive niche’ - the ability for abstract thought that has given humanity a unique advantage over other mammals.

Pinker (1997) suggests that four traits of our ancestors made it especially easy, and sensible, for us to develop conceptual reasoning. These traits are stereoscopic colour vision, living in tribes, the human hand and hunting. Of these, the vision thing provided the foundation for our further development.

Imagine you lived in a landscape of leafy scenery where images and distances are camouflaged in a complex moving background. With no depth of field and no colour perception, locating and grasping distinct objects such as food or branches, would become very difficult. The solution to this problem is stereoscopic and colour vision.

Depth perception defines a three dimensional visual space that can be filled with moveable solid objects. Colour makes objects pop out from their background allowing texture and shadow to be discerned, providing a visual sensation of density and composition.

Pinker says “Together these qualities have pushed the primate brain into splitting the flow of visual information into two streams: a “what” system for objects, their shapes and composition, and a ‘where’ system, for their locations and motions. It can’t be a coincidence that the human mind grasps the world – even the most abstract, ethereal concepts - as a space filled with moveable things and stuff.” This way of seeing is what enabled us to thrive and evolve.

(*Reference: Pinker S. (1997) *How the Mind Works*, Allen Lane, London)

The development of our visual skills has also influenced how our mind makes sense of the conceptual world. In dealing with complex concepts – once we can locate 'what is it' and 'where it is' in an otherwise camouflaged background we can then more easily grasp a concept and its properties. How we 'see' is how we think – and also why we say "I see what you mean!".

To survive in the trees we needed to recognize the objects we wanted to grasp. The human brain tends to classify objects so as to recognize them quickly. We do this in two ways. The first way is to use ' fuzzy ' categories of things based on similarity. The second is to use 'well defined' categories based on our intuitive rules of deductive reasoning as to how things work. We can think of these distinctions as ' family based' and 'rule based' thinking. Both are used and both are useful.

If in a forest you find a caterpillar, a centipede and a butterfly – similarity categories are what makes the caterpillar and the centipede seem the same (shape and size), but our deductive knowledge also sees the caterpillar and the butterfly as the same (the caterpillar is a stage in the butterfly's lifecycle). On further reflection we identify their differences. With familiarity, we do this faster, with more attention to more details.

Both thinking systems were developed to give us speed of recognition. When we turn up the microscope on either of these category systems we see the borderlines are also blurry. Within similarities there are differences (one cat is not the same as another cat). Within rules we also find exceptions (a whale is a fish, but breathes air).

When we go into a deeper level of analysis, we are not concerned with speed, but can focus on the subtlety of the distinction, using the ambiguity to identify those subtleties (ie to understand the platypus we need to let go of assumed rules).

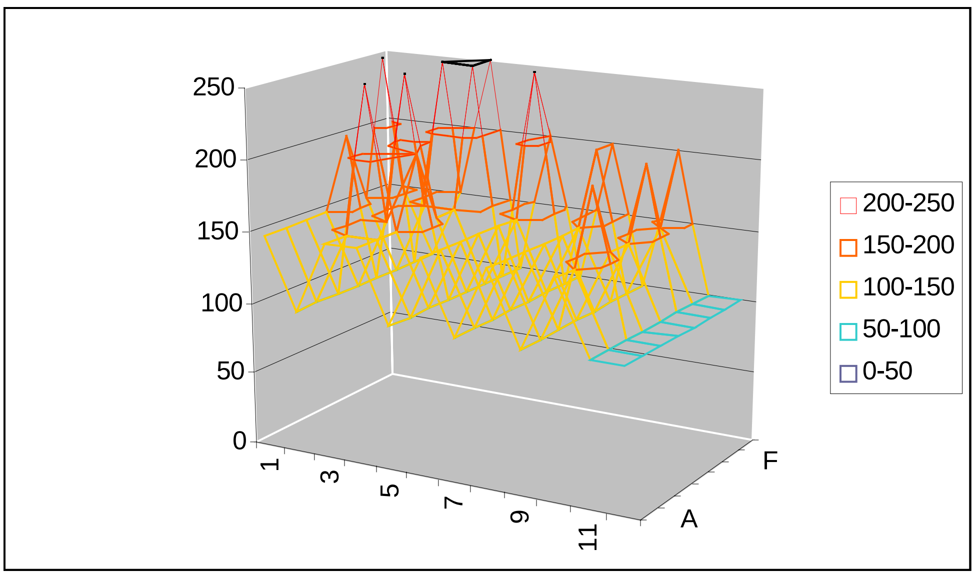
What this means in terms of evolutionary psychology is that when we need to design a thinking system to deal with a complex concept that has multiple components, we should do so in alignment with our existing system of thought.

It would be useful to firstly develop a framework to 'visualize' the component parts – at least in terms of their relative position – answering the question "where is it?" for each component in the conceptual landscape.

The framework should also easily identify the properties of each component - a conceptual equivalent to its height, weight and texture (eg relative amount, priority and effects) - answering the question " what is it?" for each component and distinguishing one from the other.

To enable us to discern the difference between component parts, we would also need both familiar 'fuzzy' categories of the items based on how they are similar – and also rule-based distinctions explained by detailed definitions. We recognize that the distinctions are for ease of management in the macro and these may overlap in the micro.

To transcend language barriers the framework should also be able to be represented in 3D - showing both depth and color in three dimensions to make use of a visual code, which in an evolutionary sense, is a way of seeing that is common to us all. By doing this we can transcend any existing mental models which see only parts of the conceptual landscape.



Recognizing the way our mind works in the practical and physical world, allows us to make greater sense of both our thinking and our conceptual world, extending our evolutionary niche, for the benefit of all.

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