

## **Visualizing data, information, knowledge, and wisdom: A discussion**

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Visual representations of knowledge can serve to illuminate abstract ideas in ways that make sense to the user. Visual metaphors provide users with cues to aid in the development of a better understanding of underlying concepts. However, the type of visualization implemented must align with what the creator of the visualization is attempting to convey, and must also accommodate for differences in users' perceptions, cognitive abilities, ability to use an interface, and domain knowledge. This paper discusses types of visualizations; the underlying principles of effective visualizations; how visualizations can be effectively implemented to explore abstract concepts and make connections between ideas; and aims to provide a discussion of the implications of visualization. Discussing types of visualization and their effective applications is important because not all types of visualization are suited to all problems, and it is vital for a visualization's creator to have an understanding of how best to communicate their intention pictorially to the user of the visualization.

This paper examines data, information, knowledge, and wisdom, as they relate to appropriately corresponding types of visualizations, and provides examples of appropriate applications. The first three phases, or levels, of integration were chosen for discussion because they work to bridge the theoretical, ranging from agreed upon abstractions to clearly defined concepts, and the systems level that is necessary for the creation of visual representations based on observation.