

TROUBLESOME KNOWLEDGE

Knowledge is considered troublesome if, for example, it:

- Conflicts with preexisting beliefs, especially if those beliefs are deeply held
- Is counterintuitive or seems illogical
- Is complex or difficult to understand
- Is disconcerting
- Requires a (transformational) change in self-perception

Troublesome knowledge *challenges the learner and can cause cognitive conflict as learners compare new ideas with their prior knowledge*. Unlike knowledge that is not considered troublesome, it can't be learned or incorporated in a step-by-step, logical/linear manner. It does, however, include **threshold concepts** that need to be grasped along the way if one is to develop a more comprehensive understanding of the issue, subject, or system.

What researchers have learned over the past 25 years about how the brain works conflicts with many of our longstanding and deeply held beliefs. Those beliefs, which have been reinforced continuously (and somewhat relentlessly) by various experts, must be both recognized and questioned in order for any substantial change to take place. The new knowledge cannot simply be grafted onto the existing structure.

We all have somewhat different belief structures, which is why people exposed to identical material will process it differently and will almost always develop their understanding in different ways, at different times, and at their own pace. It's also why simply grasping a concept is not sufficient for understanding its relevance, importance, or even its meaning.

Troublesome knowledge is a concept developed and applied in academia. In the area of the brain and behavior it has application to:

- Our ordinary experience of the world and of being in the world
- Our memories
- The choices we make
- Our story about ourselves
- Our sense of who we are

One example of troublesome knowledge is the fact that the unconscious part of our brain (System 1) processes 11 million bits of information at a time, while the conscious part processes a mere 40 bits of information. Another example is the recognition that we operate on autopilot 100% of the time. This knowledge is troublesome because it doesn't match our felt experience or our previous understanding. In addition, the gap between 11 million and 40 is almost impossible to imagine.