

THE BIG PICTURE

CRITICAL THINKING

Developing a baloney detector



BACKGROUND

Why is it that, as a profession, dental practitioners tend to believe and base their clinical decisions on information that supports their preconceived biases rather than on concepts developed from the best practices of information gathering and meta-analysis? Is critical thinking a lost art among dental care providers? How can we fix this?

MISINFORMATION

Today's world is full of misinformation, false information, and facts used to manipulate individuals to believe what is not true. Whether it is in politics, daily life, or professional circles, fallacious concepts and opinions are too often distributed through interactions or the media to unsuspecting practitioners who don't question them sufficiently. The use of false assumptions or premises to support a false argument is unfortunately a common problem, but to ignore the best evidence when choosing the most appropriate course for patient care and instead to trust in our own biases is dishonest.

CRITICAL THINKING

Critical thinking is the ability to identify errors in reasoning called logical fallacies. A logical fallacy is an error in reasoning that makes an argument invalid. Arguments are lists of statements used to support viewpoints, including premises, assumptions, and conclusions. A single negative premise will result in a false conclusion.

The experiences gained over years of exposure to truth and falsehood makes critical thinkers into scientific skeptics, which is a term coined by Carl Sagan. He hoped that everyone would be equipped with a "baloney detector" that would serve as a defense against falsehood in any context and any field. To be a skeptic means that one appreciates the limits and flaws of the human brain and uses the power of self-correction that is commonly employed in science to set things right. All claims of knowledge or truth are subjected to a rational filter. What passes through this logical filter and survives can then be accepted as truth.

APPLYING CRITICAL THINKING SKILLS

Critical thinking and scientific literacy work together in everyday life to help us avoid being deceived. It's important to keep your baloney detector working well throughout your lifetime.

Not only do individuals need to use critical thinking but they need to ensure that future generations are educated in a way that develops critical thinking skills. Instead of accepting their biases and seeking out arguments that support their views, people need to recognize the problems that result from trusting a bias rather than evidence, understand the reasons for having biases, and then taking action to correct the bias by applying truth.

Clinical Significance

Dental practitioners are falling behind other health care providers in their willingness to appreciate the rigor used in evidence-based dentistry and then in applying findings of this approach to their decision-making processes. We are slow to incorporate best practices into our way of doing things and often rely on past accepted ways rather than consider the value of scientifically proven approaches. Not only do we need to critically evaluate our own positions, but we need to invest in dental students of the future by ensuring that they are taught critical thinking principles and skills, as well as how to apply them to their clinical situations. Memorizing the answers isn't the best way to find out what works most effectively. Students need to respectfully ask question about everything and of everyone who stands before them. Their scientific skepticism and critical thinking will help them come to evidence-based conclusions and hopefully use the information well.

Macri JV: Logically fallacious. *Am J Orthod Dentofacial Orthop* 155:155-156, 2019

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