Критическое мышление и научное мышление

{ Введение

The Necessity of Thinking about Thinking

- Эвристика и валидность
- Научный скептицизм. Мышление о мышлении (саморефлексия): questioning everything that you think and everything that you think you know
- Critical thinking is basing your beliefs on actual evidence as opposed to wishful thinking
- The scientific method is scientific skepticism—not just doubt, but a positive set of methods for examining reality
- Science follows scientific methodology. It is not a set of beliefs, but it is a set of methods

The Necessity of Thinking about Thinking

- All conclusions in science are provisional
- All of our beliefs are open to revision
- You don't know what you don't know. Your knowledge and perspective may be limited in ways that you're not aware
- Be comfortable with uncertainty
- Critical thinking is, in fact, a defense mechanism against all the machinations that are trying to deceive us—whether for ideological, political, or marketing reasons

The Structure and Purpose of Argument

- The purpose of an argument for a critical thinker is not to win: critical thinker should be willing to change any conclusion when new information or a better argument is presented
- An argument must start with specific premises and then logically derive a conclusion from those premises
- A premise is a starting point; it is a fact or assumption that we take as a given at the beginning of an argument

Heuristics and Cognitive Biases

- We often think of heuristics as simple common sense
- Availability heuristic
- Escalation of commitment (committed to a decision)
- A confirmation bias. We tend to accept information and events that support our beliefs and interpret them favorably
- A congruence bias (not to test alternative theories)
- The exposure effect is a form of familiarity bias in which we tend to rate things more favorably the more familiar we are with them.

Science versus Pseudoscience

- Псевдонаучно – уступать давлению общих предубеждений, вместо того, чтобы позволять вести себя менее удобным фактам и аргументам
- Необходимость проверки/демонстрации альтернативных тезисов: иначе опасность селективного подбора фактов для собственной точки зрения
- Стремиться избегать одностороннего освещения проблемы, обращая внимания только на те обстоятельства, которые подтверждают тезис автора (confirmation bias)
- Недобросовестный выбор источников (анекдоты, общие истины – реклама вредна, т.к. врет)
- Эмоционализация

Science versus Pseudoscience

- Нельзя использовать отдельный случай наблюдения, но нужно использовать совокупность добросовестно собранных дат (кейсы)
- Избегать неоправданных обобщений
- Не допускать простых ответов по поводу комплексных ситуаций
- Признавать критику неизбежной и необходимой
- Не использовать спорные или неясные значения/категории

Critical Thinking and Science in Your Life

- There is also extreme social pressure to conform because our in-group identity is tied to the belief system
- Empirical knowledge is a journey—not a destination. If, however, you think you have arrived at absolute truth, then your journey of science and critical thinking is over

Critical Thinking and Science in Your Life

- Science, skepticism, and critical thinking—including formal logic—are rigorous processes that we use to handle the complexity of the world

- Критически мыслить – значит признавать собственную ограниченность и пытаться уменьшить ее посредством формализации процесса познания