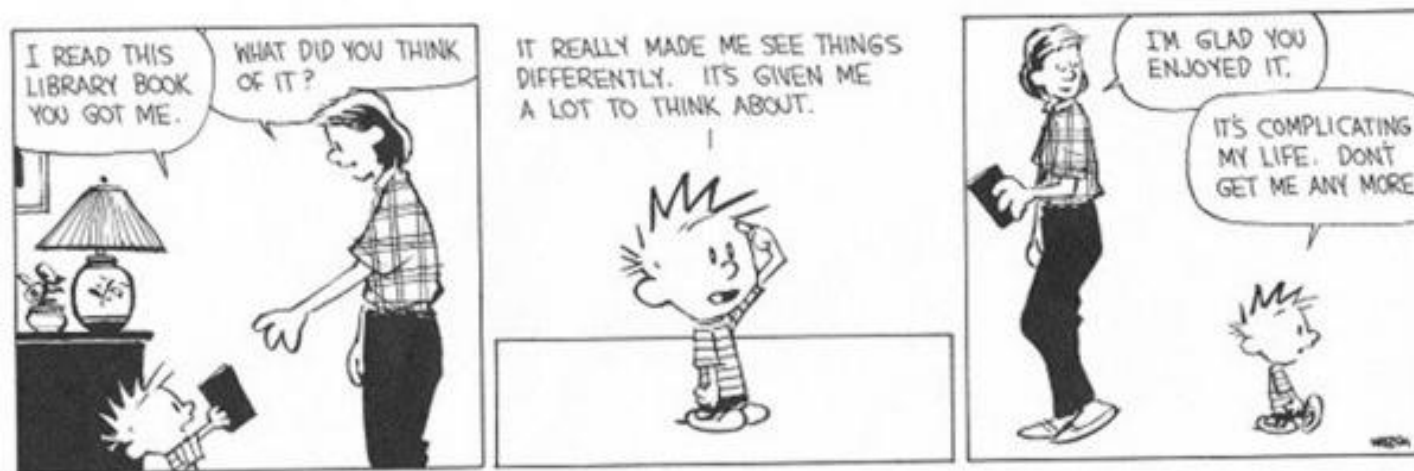


Critical Thinking and Reflection



Calvin and Hobbes, Bill Waterson

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What is critical thinking?





Why is critical thinking important?



Thinking critically

- Critical thinking
 - Is the art of analysing and evaluating thinking with a view to making the best decision possible
- Critical thinkers
 - Change their mind when given good reason to do so
 - Listen with an open mind and don't jump to conclusions
 - Look for flaws and biases in their thinking
 - Look for evidence

Critical thinking gives you a tool that lets you take what you have learned about the solution to a particular problem and then apply that solution in different ways to different, unfamiliar problems.

How to think critically

1. Clarify your thinking

- One thought at a time
- Elaborate what you mean
- Use examples that connect your thoughts to life experience
- Use analogies and metaphors to help others to connect your ideas to what they understand

Format to help clarify your thinking:

- I think (state your main point)
- In other words ... (elaborate your main point)
- For example ... (give an example or illustration of your main point)

2. Stick to the point

- Focus on the main problem or task
- Look for connections
- Does the information relate directly to the problem or task?
- Where do I need to focus my attention
- What are relevant view points?
- What facts help answer the question?

3. Question questions – the 5 whys

- Don't just accept - always ask for clarification
- When the problem is complex, formulate the question in several different ways
- Prepare – prior to a discussion think about what questions need answers and what will help



3 minute video, Harvard Business Review

4. Be reasonable

- Be on the lookout for reasonable and unreasonable behaviours – yours and others
- What biases and assumptions might be affecting your response?



How can thinking critically help me be a better project manager, team leader and team member?



20 COGNITIVE BIASES THAT SCREW UP YOUR DECISIONS

1. Anchoring bias.

People are **over-reliant** on the first piece of information they hear. In a salary negotiation, whoever makes the first offer establishes a range of reasonable possibilities in each person's mind.



2. Availability heuristic.

People **overestimate the importance** of information that is available to them. A person might argue that smoking is not unhealthy because they know someone who lived to 100 and smoked three packs a day.



3. Bandwagon effect.


The probability of one person adopting a belief increases based on the number of people who hold that belief. This is a powerful form of **groupthink** and is reason why meetings are often unproductive.



4. Blind-spot bias.

Failing to recognize your own cognitive biases is a bias in itself. People notice cognitive and motivational biases much more in others than in themselves.



 Very relevant in today's society!

20 COGNITIVE BIASES THAT SCREW UP YOUR DECISIONS

5. Choice-supportive bias.

When you choose something, you tend to feel positive about it, even if that **choice has flaws**. Like how you think your dog is awesome — even if it bites people every once in a while.



6. Clustering illusion.

This is the tendency to **see patterns in random events**. It is key to various gambling fallacies, like the idea that red is more or less likely to turn up on a roulette table after a string of reds.



7. Confirmation bias.

We tend to listen only to information that confirms our **preconceptions** — one of the many reasons it's so hard to have an intelligent conversation about climate change.



8. Conservatism bias.

Where people favor prior evidence over new evidence or information that has emerged. People were **slow to accept** that the Earth was round because they maintained their earlier understanding that the planet was flat.



 A common filter we all have

20 COGNITIVE BIASES THAT SCREW UP YOUR DECISIONS

9. Information bias.

The tendency to **seek information when it does not affect action**. More information is not always better. With less information, people can often make more accurate predictions.



10. Ostrich effect.

The decision to **ignore dangerous or negative information** by “burying” one’s head in the sand, like an ostrich. Research suggests that investors check the value of their holdings significantly less often during bad markets.



11. Outcome bias.


Judging a decision based on the **outcome** — rather than how exactly the decision was made in the moment. Just because you won a lot in Vegas doesn't mean gambling your money was a smart decision.



12. Overconfidence.

Some of us are **too confident about our abilities**, and this causes us to take greater risks in our daily lives. Experts are more prone to this bias than laypeople, since they are more convinced that they are right.



 Nobody wants to spend a lot of time thinking about problems!

20 COGNITIVE BIASES THAT SCREW UP YOUR DECISIONS

13. Placebo effect.

When **simply believing** that something will have a certain effect on you causes it to have that effect. In medicine, people given fake pills often experience the same physiological effects as people given the real thing.



14. Pro-innovation bias.

When a proponent of an innovation tends to **overvalue its usefulness** and undervalue its limitations. Sound familiar, Silicon Valley?



15. Recency.

The tendency to weigh the **latest information** more heavily than older data. Investors often think the market will always look the way it looks today and make unwise decisions.



16. Salience.

Our tendency to focus on the **most easily recognizable features** of a person or concept. When you think about dying, you might worry about being mauled by a lion, as opposed to what is statistically more likely, like dying in a car accident.



This one is interesting because it is shown to actually work!

20 COGNITIVE BIASES THAT SCREW UP YOUR DECISIONS

17. Selective perception.

Allowing our expectations to **influence how we perceive** the world. An experiment involving a football game between students from two universities showed that one team saw the opposing team commit more infractions.



18. Stereotyping.

Expecting a group or person to have certain qualities without having real information about the person. It allows us to quickly identify strangers as friends or enemies, but people tend to **overuse and abuse** it.



19. Survivorship bias.

An error that comes from focusing only on surviving examples, causing us to **misjudge a situation**. For instance, we might think that being an entrepreneur is easy because we haven't heard of all those who failed.



20. Zero-risk bias.

Sociologists have found that **we love certainty** – even if it's counterproductive. Eliminating risk entirely means there is no chance of harm being caused.



 A lot like confirmation bias, isn't it?

Another
way to
think
about
critical
thinking

Higher Order Thinking Skills from Bloom's Taxonomy

Analysis	<ul style="list-style-type: none">• Seeing patterns.• Organize parts.• Recognize hidden meanings.• Identify components.
Synthesis	<ul style="list-style-type: none">• Use old ideas to create new ones.• Generalize from given facts.• Relate knowledge from several areas.• Predict, draw conclusions.
Evaluation	<ul style="list-style-type: none">• Compare and discriminate between ideas.• Assess value of theories, presentations.• Make choices based on reasoned argument.• Verify value of evidence.• Recognize subjectivity.

Reflection: The process or faculty by which the mind observes and examines its own experiences and emotions; intelligent self awareness, introspection.

Oxford English Dictionary



How does reflective writing differ from normal academic writing?



Focused thought – focussing on the ways in which you respond to, understand and develop and apply your learning in new situations

- A way of learning from your direct experiences, rather than from the secondhand experiences of others
- i.e. experiential learning – real activity with real consequences

Reflection is a form of mental processing – like a form of thinking – that we use to fulfil a purpose or to achieve some anticipated outcome. It is applied to relatively complicated or unstructured ideas for which there is not an obvious solution and is largely based on the further processing of knowledge and understanding and possibly emotions that we already possess.

Reflection is:

Focused thought – focussing on the ways in which you respond to, understand and develop and apply your learning in new situations

- A way of learning from your direct experiences, rather than from the secondhand experiences of others
- i.e. experiential learning – real activity with real consequences

Reflective writing

Is often subjective and is usually in the first person

- i.e. uses the prepositions “I” or “we”
- Often reports on a process that has happened over time
- Conclusions usually relate to something you have learned from the experience



Which is fact and which is opinion?



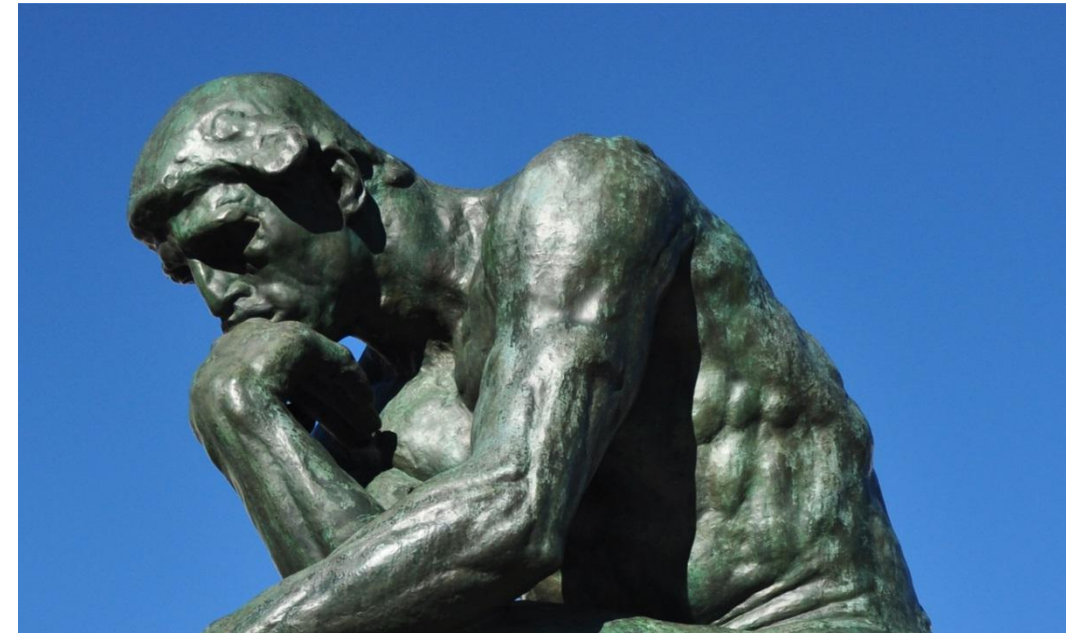
Where do we use reflection?

In our professional lives we engage in reflection, among other times, during

- Process improvement
- Post implementation review, or
- When applying for promotion or a new job

REMEMBER

A critical thinker is a reflective thinker



“The Thinker” Auguste Rodin

Types of reflection

Evaluative reflection:

- Usually open-reflection based upon capturing development over time,
- Examples
 - “the last time I.....”
 - “Ten things I have learned since starting my placement....”

Question based reflection

- Can provide shape and direction for reflective writing
- Example:
 - What happened?
 - Who was involved?
 - Why did I feel.../ did it happen?
 - When?
 - How?

Synthetic reflection

- Highlighting themes over time – review any reflections you have made already and identify themes
 - Creating something new from your existing knowledge / experience / thoughts / writing