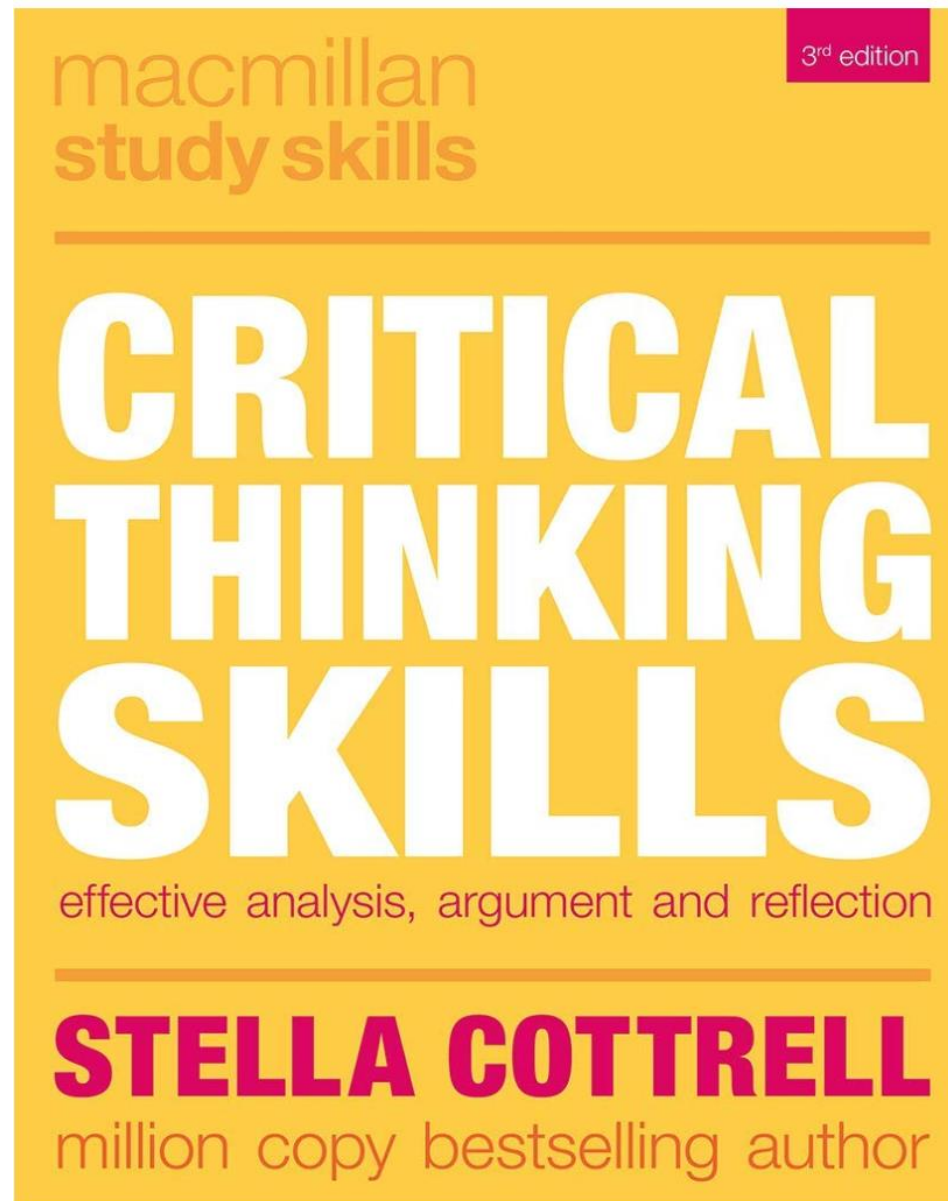


BMMB7009
Critical Literature Review
for doctoral students

Week 2 – Critical Thinking
and Review Strategy (I)



Cottrell S (2017) Critical Thinking Skills. London. Palgrave Study Guides.

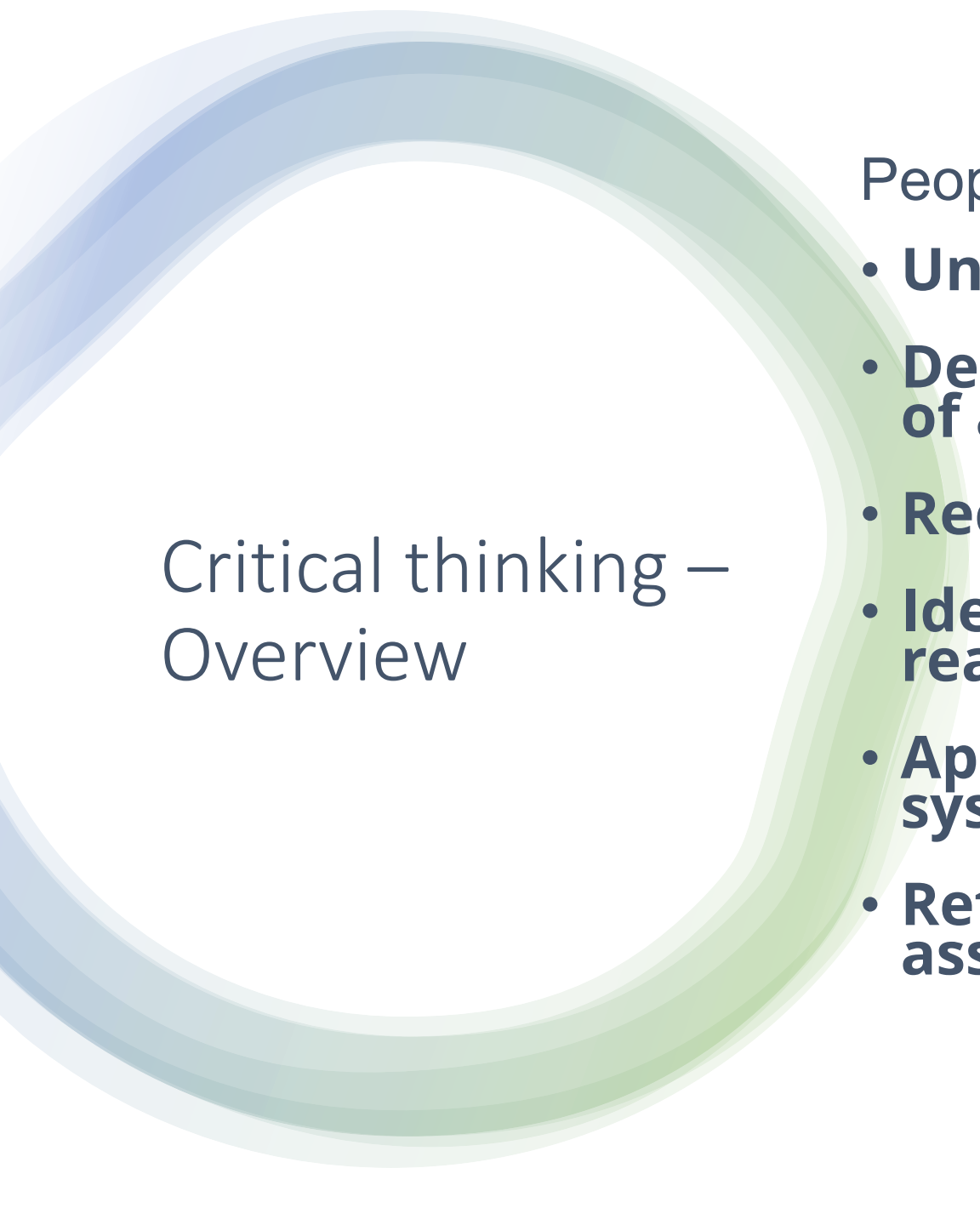


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What is Critical thinking ?

<https://www.skillsyouneed.com/learn/critical-thinking.html>





Critical thinking – Overview

People with critical thinking skills can:

- **Understand the links between ideas.**
- **Determine the importance and relevance of arguments and ideas.**
- **Recognise, build and appraise arguments.**
- **Identify inconsistencies and errors in reasoning.**
- **Approach problems in a consistent and systematic way.**
- **Reflect on the justification of their own assumptions, beliefs and values.**

Critical thinking – Overview

- **Critical thinking** means making **reasoned judgments** that are logical and well-thought out. It is a way of thinking in which you don't simply accept all arguments and conclusions you are exposed to but rather have an attitude involving questioning such arguments and conclusions. It requires wanting to see what evidence is involved to support a particular argument or conclusion.
- People who use critical thinking are the ones who say things such as, 'How do you know that? Is this conclusion based on evidence or gut feelings?' and 'Are there alternative possibilities when given new pieces of information?'

(study.com)



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Critical thinking as a process

A complex process of deliberation which involves a wide range of skills and attitudes. It includes:

- *Identifying other peoples positions*, argument and conclusions
- *Evaluating the evidence* for alternative points of view
- *Weighing up opposing arguments* and evidence fairly
- *Being able to 'read between the lines'*, seeing beyond surfaces, and identifying false or unfair assumptions
- *Recognising techniques* used to make certain positions more appealing than others, such as false logic and persuasive devices
- *Reflecting on issues in a structured way*, bringing logic and insight to bear
- *Drawing conclusions* about whether arguments are valid and justifiable, based on good evidence and sensible assumptions
- *Presenting a point of view* in a structured, clear, well-reasoned way that convinces others

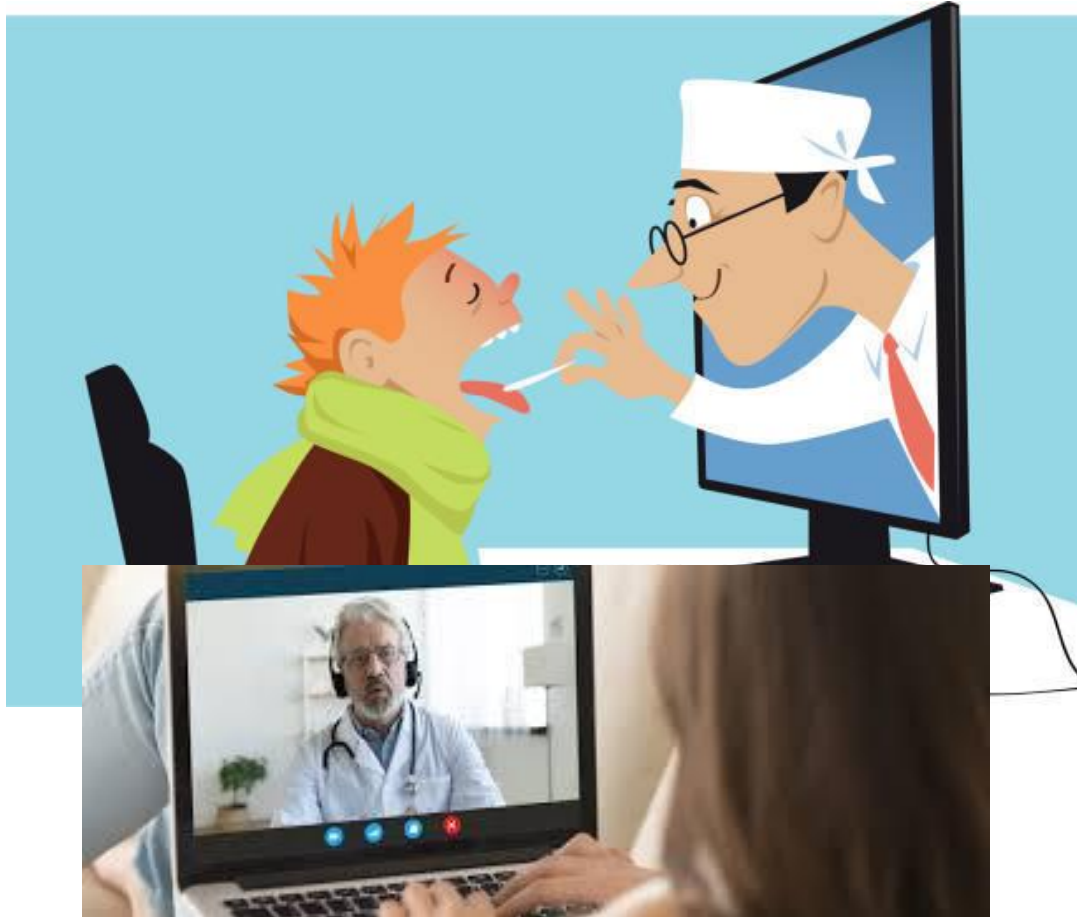
Many skills are involved within the critical thinking process

- Reading / listening
- Observation
- Analysis
- Interpretation
- Reflection
- Evaluation
- Inference
- Explanation
- problem solving
- decision making.

Important activities

- Attention to the small details as well as bigger picture
- Looking for trends and patterns
- Examining from different perspectives
- Repetition by looking and thinking about something several times
- Trying to be objective but recognising your own subjectivity and positionality
- Considering implications, potential outcomes and consequences

Online medical consultation vs face-to-face medical consultation



What do you think ?

Indian food

Nepalese food

Pakistan food

Chinese food



Traditional food in a contemporary world



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Critical reading check-list

- What is the main line of reasoning (the main argument)?
- Is the line of reasoning clear both in the introduction and in the conclusion?
- What is the key evidence used to support the line of argument? Is the evidence presented in a way that develops the argument and leads clearly to the conclusion?
- When was the evidence produced? Is it up to date? Is it still relevant?
- Is there sufficient evidence to prove the case? Is the evidence relevant? What might be missing?
- What (if any) would have been a better order in which to present the evidence so as to strengthen the line of reasoning?
- Are there any examples of flawed reasoning? Attempts to persuade the reader through an appeal to the emotions? Is evidence interpreted and used correctly?
- Has the writer given sufficient consideration to alternative points of view?



Critical thinking when reading

- Identify the line of reasoning
- Critically evaluate the **line of reasoning**
 - Look for:
 - Relevant, contributing and sufficient propositions
 - Logical progression
 - False premises
 - Flawed reasoning
- Question surface appearances
- Identify evidence in the text
- Evaluate the evidence
 - Use valid criteria to evaluate evidence
(dates of research, sources of information, bias, statistics, conditions of data collection, emotive language etc.)
- Identify the writer's conclusions
- Evaluating whether the evidence supports the conclusions
 - Check for hidden false assumptions

(Cottrell, 2017)

Descriptive writing v Critical analytical writing

Descriptive writing	Critical analytical writing
States what is happening	Identifies the significance
States what something is like	Evaluates strengths and weaknesses
Gives the story so far	Weights one piece of information against another
States the order in which things happened	Makes reasoned judgements
Says how to do something	Argues a case according to the evidence
Explains what a theory is	Shows why something is relevant or suitable
Explains how something works	Indicates why something will work (best)

Descriptive writing v Critical analytical writing

Descriptive writing	Critical analytical writing
Notes the method used	Identifies whether something is appropriate or suitable
Says when something occurred	Identifies why the timing is of importance
States the different components	Weights up the importance of component parts
States opinions	Gives reasons for selecting each option
Lists details	Evaluates the relative significance of details
Lists in any order	Structures information in order of importance
States links between items	Shows the relevance of links between pieces of information
Gives information	Draws conclusions

Why is critical thinking important for research?

A well cultivated critical thinker:

- raises vital questions and problems, formulating them clearly and precisely = *Research objective and research questions*
- gathers and assesses relevant information, using abstract ideas to interpret it effectively comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards = *Hypothesis/model development*
- thinks open-mindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences; = *problem solving and innovation*
- communicates effectively with others in figuring out solutions to complex problems.

Good practice (samples)	Not as strong/descriptive
In comparison to Jones (2008), Smith (2009) ...	Jones (2008) says ... and Smith (2009) tells us ...
Jones (2008) agrees with Smith (2009) on...	Jones (2008) states ...
In contrast to Jones (2008), Smith (2009) maintains...	Jones (2008) maintains that ... and Smith (2009) states..
Smith (2009) supports Jones (2008) earlier work by also finding...	Jones (2008) says ... and Smith (2009) tells us ...
The literature remains ambiguous in this area, Smith (2009) and Jones (2008) come to different conclusions	Jones (2008) maintains that ... and Smith (2009) states..
Jones (2008) comes to the conclusion that ... which has been expanded by Smith (2009) to include...	Jones (2008) claims that ... and Smith (2009) states..

Source:
<https://www.indeed.com/>

Critical Thinking Skills



1

Observation

The ability to notice and predict opportunities, problems and solutions.



2

Analysis

The gathering, understanding and interpreting of data and other information.

3

Inference

Drawing conclusions based on relevant data, information and personal knowledge and experience.



4

Communication

Sharing and receiving information with others verbally, nonverbally and in writing.



5

Problem solving

The process of gathering, analyzing and communicating information to identify and troubleshoot solutions.

Why is critical thinking important?

Critical thinking skills are vital, if you want to solve complex problems, collect and analyse data, derive insights from information or improve your observation. Critical thinking can help you hone your cognitive skills, allowing you to improve your performance and advance your research. Some benefits of critical thinking:

Increased expertise in your field: Critical thinking skills can help you gain increased expertise in your field, no matter what industry you are researching. You will become a more competitive candidate.

Competitiveness in the knowledge economy: The modern economy relies heavily on specialised knowledge and quick learning. Critical thinking skills can help you compete more effectively in the knowledge economy.

Greater creativity: Critical thinking can help increase your mental flexibility and think about topics in a new way. This can lead to increased creativity in your work.

Enhanced problem-solving: Critical thinking skills can help you define problems more effectively and consider them in new ways. These abilities can help you solve the everyday problems you face in the workplace.

Facilitates independence: Better critical thinking can reduce your reliance on your coresearchers or supervisors and allow you to solve problems on your own. This can allow you to work independently.

Critical thinking exercises.

Critical thinking involves analysing problems or issues objectively and rationally. Critical thinkers understand their own biases and assumptions, as well as those of others. They are also able to see the world from a different point of view and understand how their experiences impact their thinking.

Exercise 1: The Ladder of Inference

Ladder of Inference model was developed by organizational psychologist Chris Argyris. Each rung on the ladder of inference represents a step you take to arrive at your conclusions.

<https://case.edu/ipe/news-and-events/huddle/tips-high-impact-teamwork-using-caution-ladder-inference>

The decision-making process starts **when we are faced with a problem or situation**. As soon as we observe something problematic or important, **we presume what is causing it, and then we use that assumption to draw conclusions. Based on those conclusions, we take action.**

For example, say you're at a party and see a friend across the room. You catch their eye and wave, but they turn and walk away. Using the ladder, you might climb the rungs as follows:

- 1.**Observe** that your friend walked away.
- 2.**Select** a few details of the situation, including your wave and your assumption that they saw you.
- 3.**Meaning** is attached based on the environment, making you think your friend must have other people to talk to at the party.
- 4.**Assumptions** are made based on that meaning, assuming that means your friend doesn't like you as much as them.
- 5.**Conclusions** are drawn from the assumption, and you determine that your friend must be mad at you or doesn't want you to be at the party.
- 6.**Beliefs** are formed, making you think you're not welcome.
- 7.**Action** is taken, and you leave the party.

In this example, you started with a situation (someone walking away at a crowded party) and made a series of inferences to arrive at a conclusion (that the person is mad at you and doesn't want you there).

The Ladder of Inference can be a helpful tool to frame your thinking because it encourages you to examine each step of your thought process and avoid jumping to conclusions. It's easy to make assumptions without realizing it, as in this scene. Perhaps your friend never even saw you wave from across the crowded room

Exercise 2: The Five Whys

Serrat, O. (2017). The Five Whys Technique. In: Knowledge Solutions. Springer, Singapore.
https://doi.org/10.1007/978-981-10-0983-9_32

The "Five Whys" technique is an analytical skill that can help you uncover the source of a problem. The activity was created by Sakichi Toyoda, the founder of Toyota, and consists of repeatedly asking “why?” when a problem is encountered to determine its root cause.

This exercise can be difficult because knowing if you've discovered the source of your problem is challenging. The "five" in "Five Whys" is just a guideline — you may need to ask more. When you can't ask anything else, and your response is related to the original issue, you've probably arrived at the end.

Even if you need several rounds of questioning, just keep going. The important part that helps you practice critical thinking is the process of asking "why?" and uncovering the deeper issues affecting the situation.

Example

For instance, say you're trying to figure out why your computer keeps crashing.

You ask "why," and the answer is that there's a software problem.

Why? Because the computer keeps running out of memory.

Why? Because too many programs are running at the same time.

Why? Because too many browser tabs are open.

Why? Because multitasking is fragmenting your focus, you're doing too many things at once.

In this example, working through the "why's" revealed the underlying cause. As a result, you can find the best solution, which is concentrating on just one thing at a time.

Exercise 3: Inversion

Inversion is a critical thinking exercise that you can use. Inversion is like taking on the role of the “devil's advocate”. Adopt the opposite view of whatever issue you are exploring and consider the potential arguments for that side. This will help broaden your critical thinking skills and enable you to see other perspectives on a situation or topic more clearly.

For example, let's say you're thinking about starting your own business. Using inversion, you would explore all of the potential arguments for why starting your own business is bad. This might include concerns like:

- You could end up in debt.
- The business might fail.
- It's a lot of work.
- You might not have time for anything else.

By exploring these potentially adverse outcomes, you can identify the potential risks involved in starting your own business and make a sound decision. You might realise that now is not the right time for you to become an entrepreneur. And if you do start the company, you'll be better prepared to deal with the issues you identified when they occur.

Exercise 4: Argument Mapping

<https://thinkeranalytix.org/wp-content/uploads/2018/09/TvG-Using-argument-mapping-to-improve-critical-thinking-skills-2015.pdf>

Argument mapping can be a beneficial exercise for enhancing critical thinking skills. Like mind mapping, **argument mapping is a method of visually representing an argument's structure**. It helps analyse and evaluate ideas as well as develop new ones.

In critical thinking textbooks, argument diagramming is often presented to introduce students to argument constructions. It can be an effective way to build mental templates or schema for argument structures, which researchers think may make critical evaluation easier.

Argument/contention

Reason 1

Reason 2

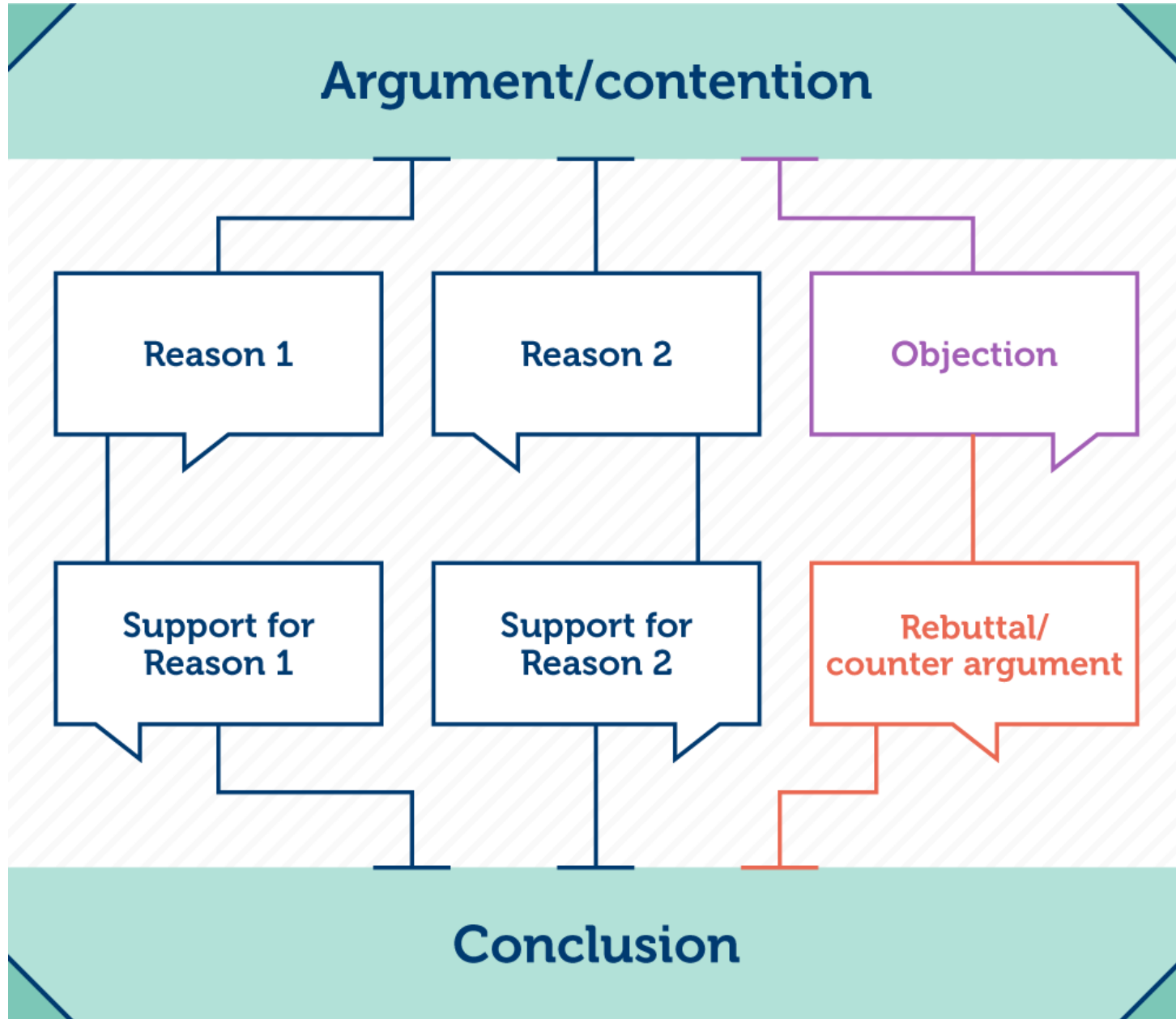
Objection

Support for
Reason 1

Support for
Reason 2

Rebuttal/
counter argument

Conclusion



Argument maps typically include the following:

Conclusion: What is being argued for or against

Premises: The reasons given to support the conclusion

Inferences: The connections made between the premises and conclusion

Critical vs. creative thinking

To understand how to use the Productive Thinking Model effectively, we need to understand Hurson's theory about thinking. According to Hurson, productive thinking comprises two distinct processes — creative thinking and critical thinking. <https://productivethinking.com/>

Critical thinking is:

1. Analytical
2. Judgmental
3. Selective

In contrast, creative thinking is:

1. Generative
2. Non-judgemental
3. Expansive

Exercise 5: Opinion vs. Fact

Critical thinking activities that focus on opinions and facts are particularly valuable and relevant new learning opportunities. Our connected world makes it easy to confuse opinions and facts, especially with sensationalist news articles and click-bait headlines. <https://www.scientificamerican.com/article/information-overload-helps-fake-news-spread-and-social-media-knows-it/>

How can you tell a fact from an opinion? Facts are generally objective and established, whereas opinions are subjective and unproven. For example, "the cloud is in the air" is a fact. "That dress looks good on you" is an opinion.

Ask yourself the following questions:

Who is saying what? What reasons might be behind their statements?

Does the claim make sense? Who would disagree with it and why?

How can you tell if the data is reliable? Can it be fact-checked? Has it been shared by other credible publishers?

How do you know whether the presenter is biased? What kind of language is being used?

This exercise can train your mind to start asking questions whenever presented with a new claim. This will help you think critically about the information you are taking in and question what you are hearing before accepting it as truth.

We will look again at bias and how it might creep into your work.

Activity

- Describe how you travelled from your home into the University today
- Consider any places you pass on this route that might enhance i) food, and culture heritage or ii) facilitate the development of smart city in Swansea.



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Exercise 6: Autonomy of an Object

Dr. Marlene Caroselli "The Critical Thinking Tool Kit,"

<https://spers.ca/wp-content/uploads/2013/08/50-activities-for-developing-critical-thinking-skills.pdf>

describes a critical thinking exercise called "**Living Problems, Lively Solutions**." This exercise uses the autonomy of an object as a **problem-solving tool to find a possible solution**.

Personify your problem and place it in another context — a different time or place. This allows you to uncover unique solutions to the problem that might be tied to your mental associations with that setting.

For example: Poor time management. You might personify the issue as a thief of your time. The idea of a thief could make you think of jail, which might prompt thoughts of avoiding distractions in your life. The idea of jail could lead you to the possible solution of checking in with an accountability friend to keep you out of jail, stimulates thoughts you wouldn't have considered without the particular different context.

Exercise 7: The Six Thinking Hats



Designed by Edward de Bono,

the Six Thinking Hats is a critical thinking exercise that was created as a tool **for groups to use when exploring different perspectives on an issue**. When people use other thinking processes, meetings can become challenging rather than beneficial.

<https://www.debonogroup.com/services/core-programs/six-thinking-hats/>

To help teams work more productively and mindfully, de Bono suggests dividing up different styles of thinking into six categories, represented as hats.

To help teams work more productively and mindfully, de Bono suggests dividing up different styles of thinking into six categories, represented as hats:

- 1.The white hat** is objective and focuses on facts and logic
- 2.The red hat** is intuitive, focusing on emotion and instinct
- 3.The black hat** is cautious and predicts negative outcomes
- 4.The yellow hat** is optimistic and encourages positive outcomes
- 5.The green hat** is creative, with numerous ideas and little criticism
- 6.The blue hat** is the control hat used for management and organization

Exercise 7: The Six Thinking Hats

With each team member wearing a **different hat**, a group can examine an **issue or problem from many different angles**, preventing one viewpoint (or individual) from dominating the meeting or discussion. This means that decisions and solutions reached using the Six Thinking Hats approach will likely be more robust and effective, and everyone's creative thinking skills will benefit. <https://able.ac/blog/critical-thinking-model/>

Critical thinking can facilitate your analytical capacity

Critically Reflexive Practitioner.

Cunliffe, A. L. (2008). *Organization theory*. London. Sage.

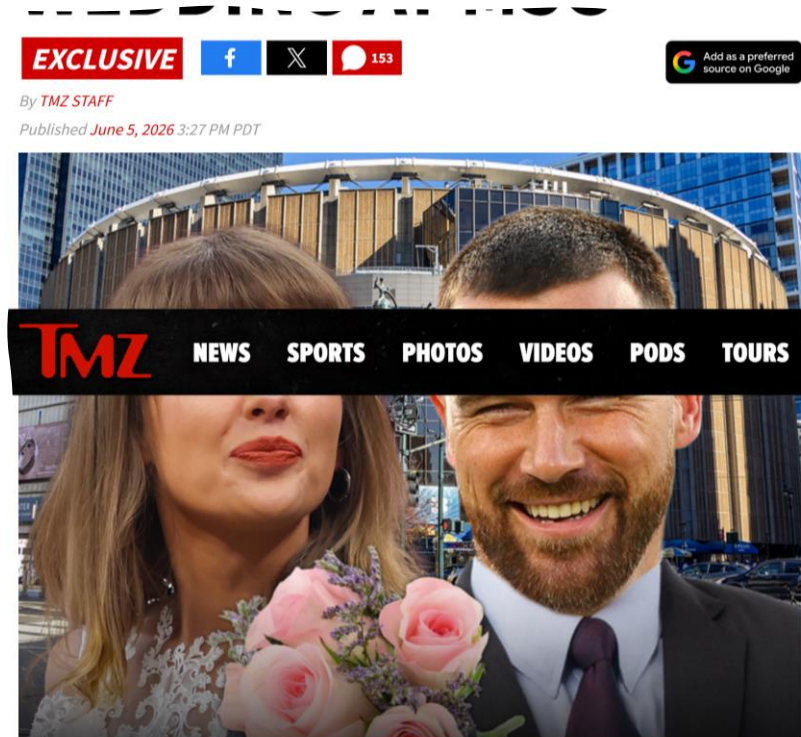
Cunliffe, A. L. (2016). "On Becoming a Critically Reflexive Practitioner" Redux: What Does It Mean to Be Reflexive? *Journal of Management Education*, 40(6), 740-746. <https://doi.org/10.1177/1052562916668919>

<https://doi.org/10.1177/1052562916668919>

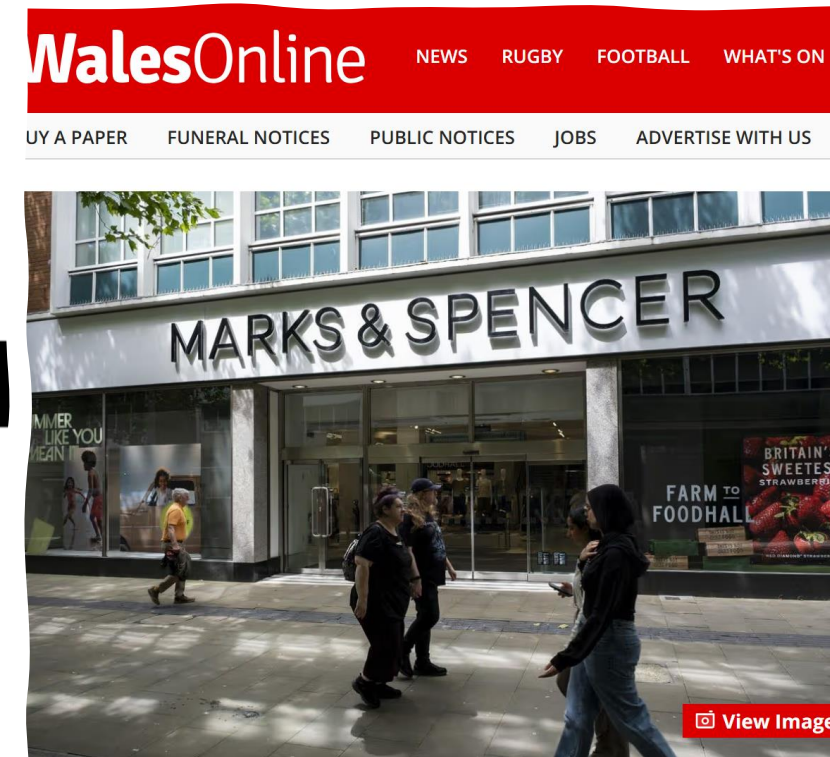
<https://www.researchgate.net/publication/263471062> Relationally Reflexive Practice A Generative Approach to Theory Development in Qualitative Research

Activity 2 – Show your critical thinking

Evaluate these issues through the theoretical lens



Taylor Swift and **Travis Kelce** will take their vows in front of more than 1,000 people inside Madison Square Garden ... TMZ has learned.



The Marks & Spencer store on Oxford Street, Swansea (Image: In Pictures
Getty Images)

Evaluate these issues
through the theoretical lens



Australia's
social media
ban: Will it
work?

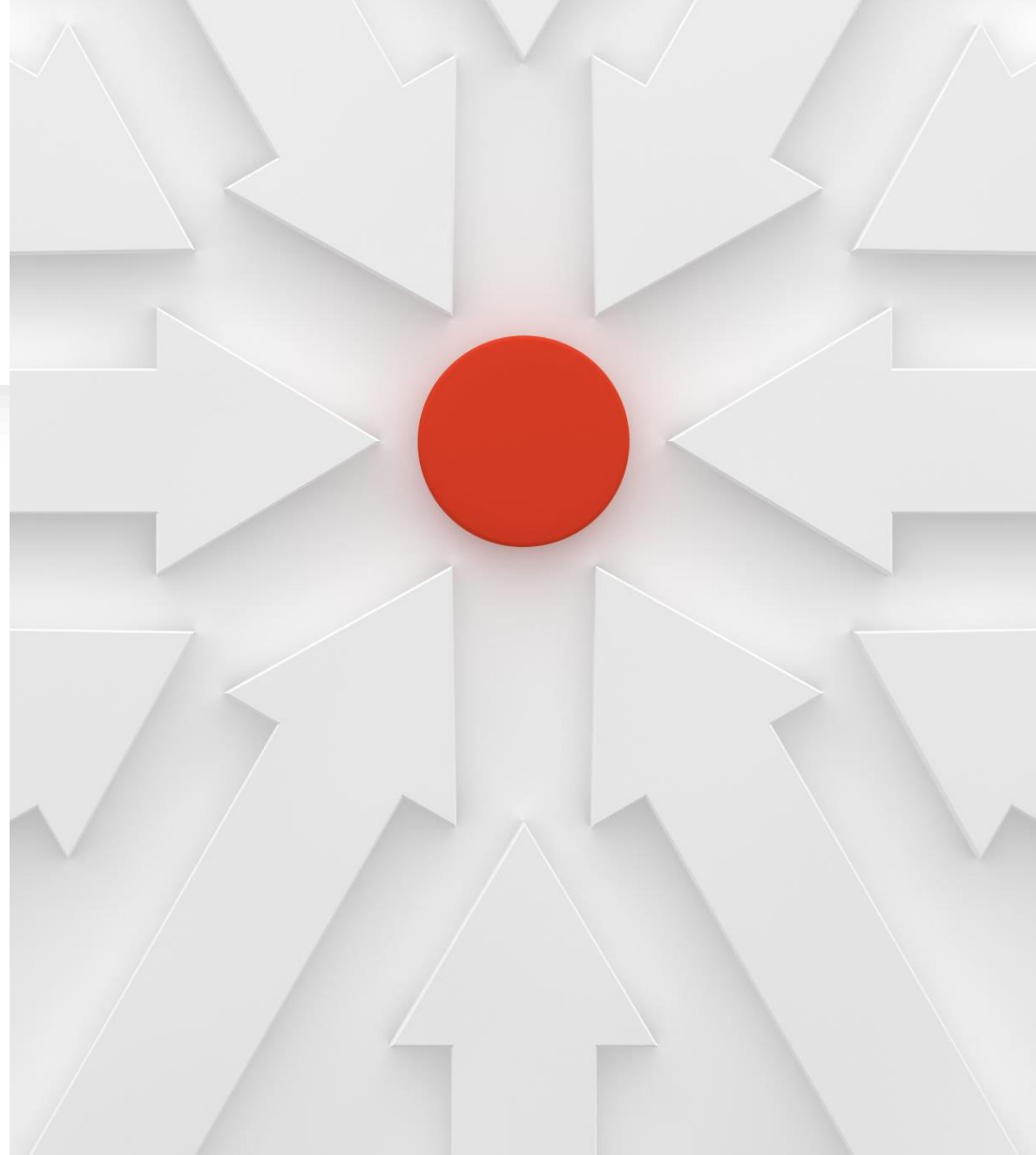
Podcast 

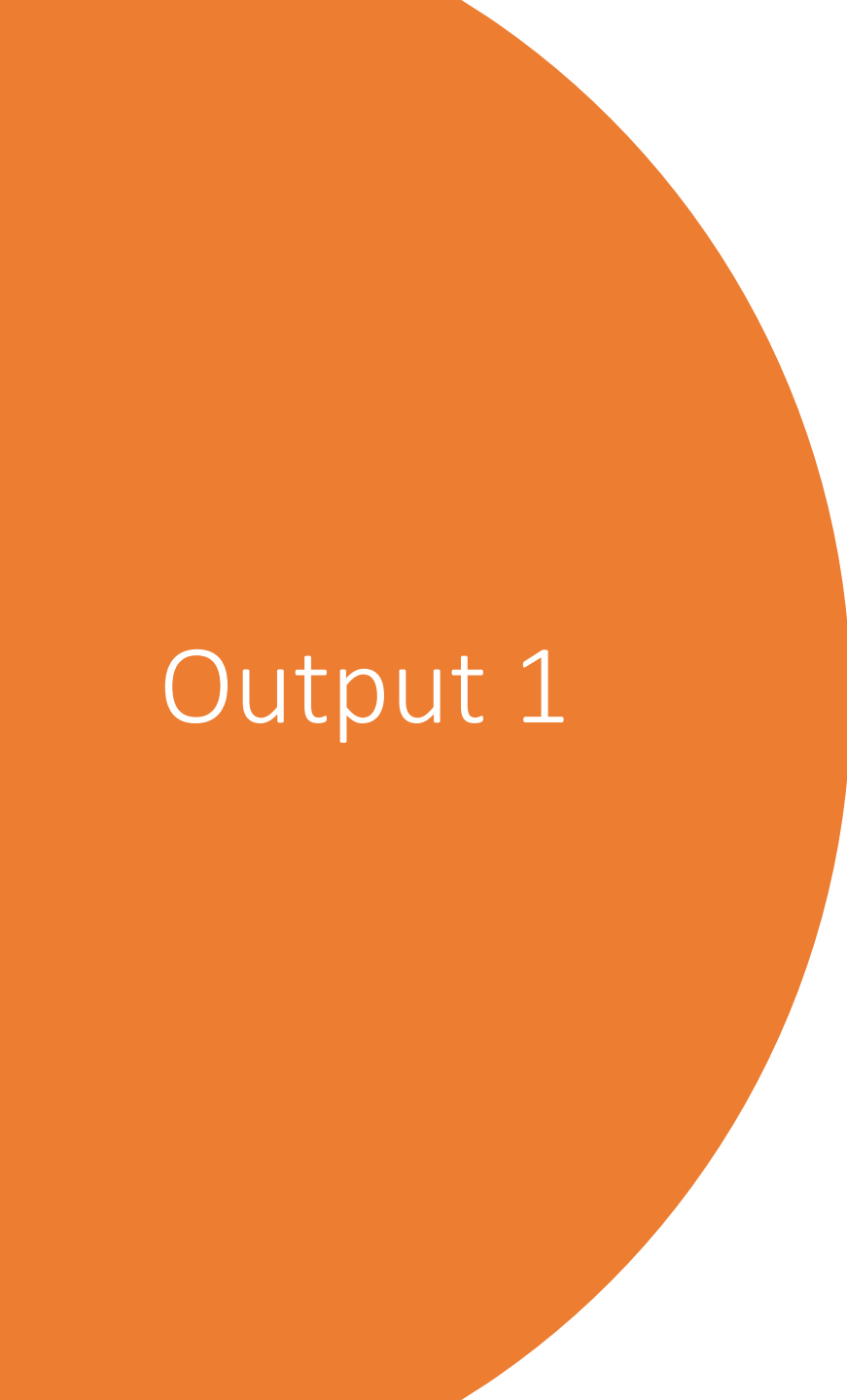
BBC NEWS | WORLD SERVICE

Activity 2

Select an issue. You can pick it from the aboves or you can identify it yourself.

Evaluate it from Business Perspective e.g. industry perspective.



A large orange circle occupies the left side of the slide, partially cut off by the edge.

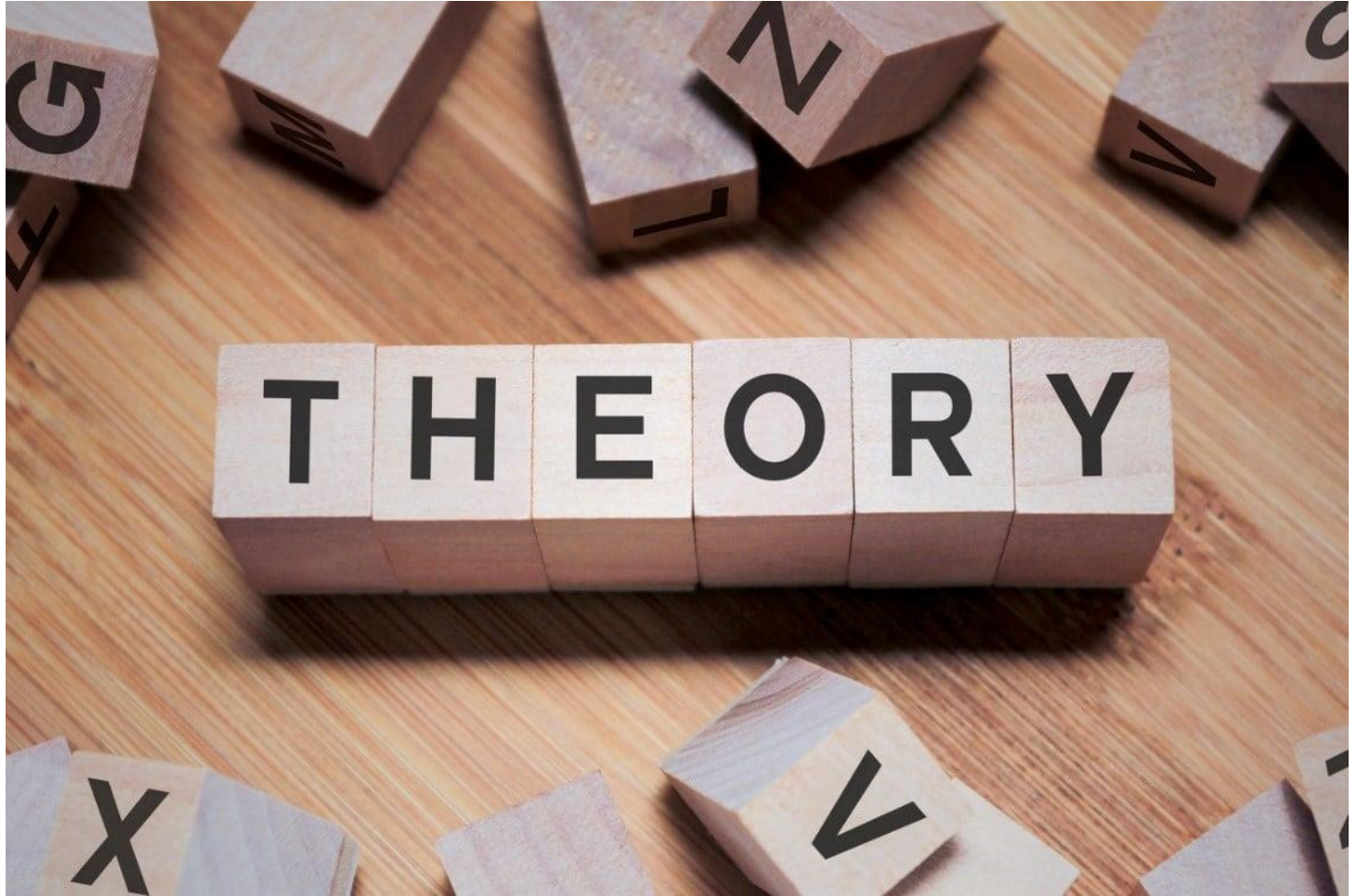
Output 1

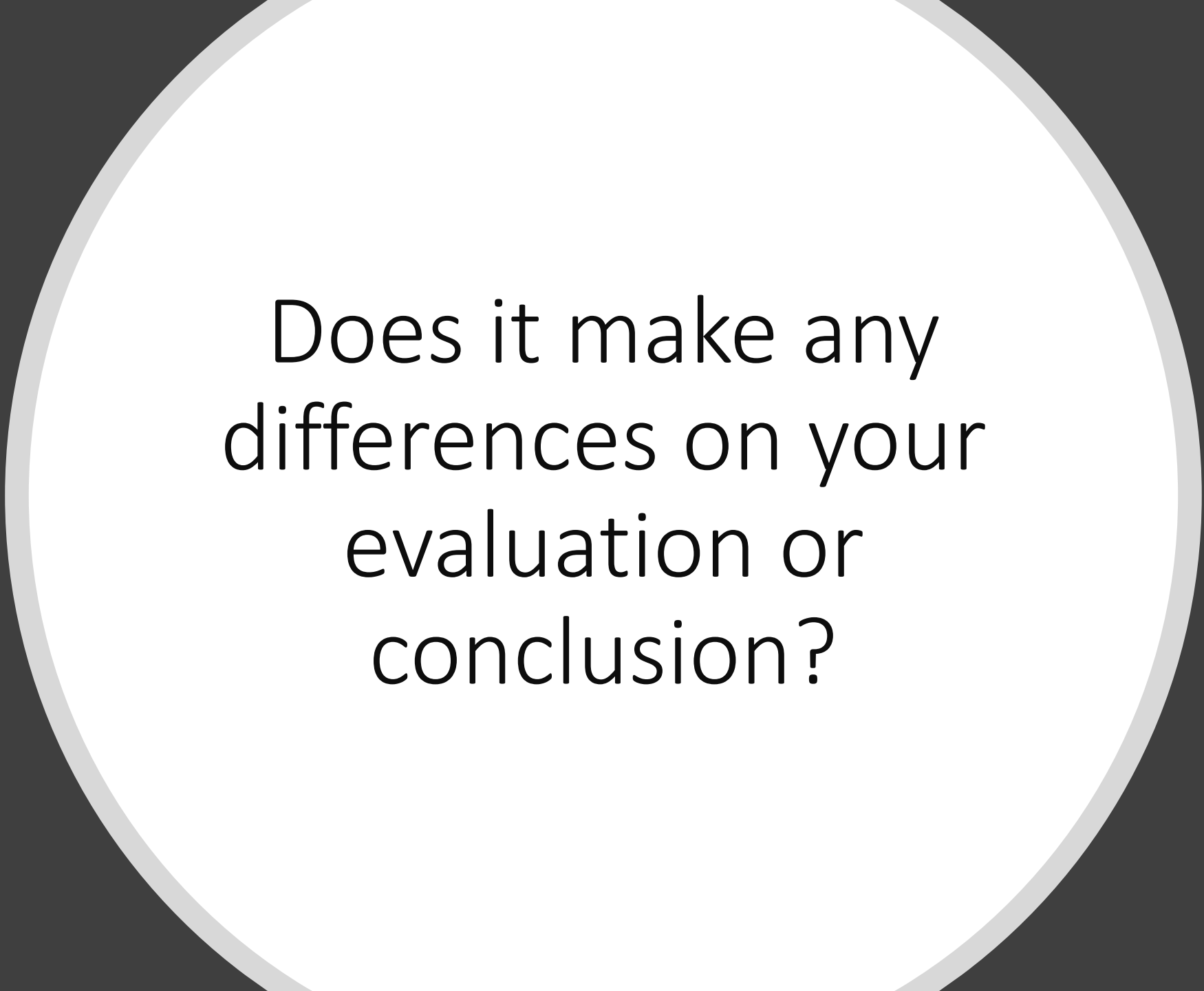
- 5 ppt slides to show your results



Activity 2

Evaluate the issue
with theory.





Does it make any
differences on your
evaluation or
conclusion?

Output 2

- Based upon your 5 ppt slides, add on a max of 5 slides to show your results/differences (if any)

