Critical Thinking
VALUE MaP
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Student A, who lives along the Old Dover Road, comes into a 9.00 a.m. lecture 10 minutes late. As he sits down next to his friend, Student B, he mutters,

“Traffic was terrible across the Wincheap Roundabout, and along Rheims Way!”

What do you make of this statement?
The critical thinking approach

- What’s the evidence for heavy traffic?
- How heavy?
- Heavy compared to previous day’s?
- What is ‘normal’ traffic flow? How is that measured?
- Genuine reason? Unexpected RTA OR
- Genuine RTA which compounded problems of a late start? OR
- Just late because he’s disorganised!? 
- Forgot lecture?
The critical thinking approach

- Ashamed to admit genuine reason for lateness!
- Is disorganised – that’s the basic problem! – but does not realise this! Think’s the problem is not him…genuinely believes this!
- A is a liar!
- Came via Sturry Road; he’s just late in the mornings!
- Working on an assignment, forgot the time
- Roadworks in Wincheap have created a problem; this was not picked up by Radio Kent…A was quite innocent of deception/self-deception etc.!
We can see that a simple statement, from a critical thinking perspective, can create a multitude of possibilities! Not least because it’s an unquantified, unverified assertion…

1. **WHO** is making the statement? What assumptions and preconceptions do they make? Bias? Motivation, conscious or unconscious?

2. **WHAT** is being said?
The big 4 questions

- HOW is this evidenced? What kind of evidence? Anecdotal? Verifiable? Statistical? How much evidence? What’s the choice of evidence? What evidence has not been included? Deliberately or accidentally?
- HOW does this statement develop an argument? What are the consequences of the statement? Is it ‘true’ across time, or simply one instance? Can we draw any generally viable and applicable conclusions?
The critical thinking approach

- Whilst our light-hearted ‘case-study’ does not involve academic evidence or arguments, when scrutinised it does raise the Big 4 questions of critical thinking!
- And the way we might ‘apply’ the Big 4 to the case-study mirrors the kind of interrogative, probing, approach we should take to genuine academic evidence or arguments...
- So what is critical thinking?
What is critical thinking?

- Critical thinking can be seen as a type of constructive scepticism.
- Critical thinking involves detaching ourselves from instant agreement/disagreement, and exploring the reasons *why* we accept/reject an ‘argument’; *why* we should raise qualifications and *what* sort of qualifications these should be.
- It involves an analytical *evaluation* of evidence we use (in writing); or read (in research).
What is critical thinking?

- When you think critically you...
  - Actively seek all sides of an argument
  - Test the soundness of the claims made
  - Test the soundness of the evidence used to support the claims
  - Weigh up the evidence – for and against
What is critical thinking?

- Stand back – identify bias
- Examine from different perspectives
- Check accuracy
- Check logic
- Identify flaws in reasoning
- Ask questions/problematise
Key terms

- **Proposition**: A statement of what an author wishes to prove
- **Argument**: The overall case made by an author (including the proposition) plus the explanation as to why the proposition is true
- **Line of reasoning**: The way in which this position is logically explored, justified and ‘unfolded’
- ** Assertions**: Statements that need further evidence before they can be accepted
- **Premises**: Initial positions/points of view that precede/justify the argument itself
- **False premises**: Initial arguments, and arguments, based on generalisations or insufficient evidence
What is critical thinking?

- There is an excellent account of this process in Cottrell, S (2008) The Study Skills Handbook 3\textsuperscript{rd} Edtn. Basingstoke, Palgrave Macmillan
- We can simplify the process by dividing it into 4 clear stages
- 1. What are the prior assumptions, contextual information and premises that \textit{precede} the ‘argument’?
  - \textit{Note these may not always be apparent in the text because they are assumed, taken for granted}
- 2. How is the argument then developed?
What is critical thinking?

3. What is the evidence provided to support the ‘argument’, and how can it be evaluated?
4. What is the conclusion reached, and how does the preceding discussion, information and evidence (logically) support it?
Put simply: What’s the prior position; what’s the main point; where’s the weak/strong evidence; what’s the conclusion!
The analytical ‘tools’ for critical thinking

- Identifying the line of reasoning
- Critically evaluating the line of reasoning
- Identifying conclusions
- Looking ‘underneath the surface’
- Identifying evidence
- Evaluating evidence using valid criteria
- Deciding if the evidence supports conclusions
1. Identifying the line of reasoning in a text

- Look for the way in which a text sets out the author’s position:
  - The text moves from stage to stage logically
  - The text moves towards a conclusion

- Note that this is a continuous process
  - So at paragraph level, we are asking what is the central ‘point’, how’s it explored/defended by evidenced discussion; what’s the conclusion/transition to the next paragraph
  - We should expect the whole paragraph to be unified around a central point that then unfolds a line of reasoning
Identifying the line of reasoning in a text

- The line of reasoning is a case that is continually being made
  - Backed up by evidence
  - Backed up by examples
  - Leading to a conclusion

- Note that if there are any ‘weak links’ in this ‘chain’, the ‘chain’ itself will be weakened or will break, to use a metaphor!

- Note that the line of reasoning is a stage-by-stage process
2. Critically evaluating the line of reasoning

The line of reasoning can be critically evaluated by examining how it contains:

A. Relevant, contributing and sufficient propositions/reasons
   ◦ Does everything in the ‘argument’ cohere?
   ◦ Is it all relevant?
   ◦ Does everything provided as evidence/reasons for something hold true?
   ◦ If a different conclusion is highly probable – i.e. there is an alternative conclusion – then the line of reasoning is flawed

B. Logical progression
   ◦ Do points/stages move from one to another in a logical way
   ◦ If A, then B, then C not C >A>B
   ◦ The “P double E” position – point; evidence; evaluation/conclusion
Critically evaluating the line of reasoning

C. False premises
   ◦ If the initial conceptual starting point is false, then the rest of the ‘argument’ breaks down
   ◦ The ‘meta–position’ is wrong!
     • ‘Smoking damages your health’/’Outdoor exercise is good for you’

D. Flawed reasoning
   ◦ Assuming a causal connection
     • “I revised hard for that exam and got a low mark, so next time I won’t revise – so I should get a higher mark”
Critically evaluating the line of reasoning

- E. Drawing general conclusions based on one or two examples
  - “The woollen jacket caused a serious skin-reaction in a 3 year old; therefore sales of woollen garments to children should be banned”
3. Looking ‘underneath the surface’ of an argument

- Many texts make implicit judgements about an issue
- They may appear fully ‘academic’, and indeed be peer-reviewed, but they carry certain hidden assumptions or agendas
- They may not provide all necessary information
- They may be highly evidential, yet fail to acknowledge alternate interpretations
3. Looking ‘underneath the surface’ of an argument

- Many of these issues are particularly relevant to statistics/data
- To be truly critical, we need to try and detect *implicit* as well as explicit reasoning
- There may well be sources that you find that DO maintain academic integrity BUT also promote a kind of ‘constructive bias’
- E.g. charities, pressure groups, NGOs
4. Identifying and evaluating evidence in a text

- This may be relatively straightforward to identify.
- For example, an academic paper that uses tables, charts and diagrams and is supported by statistics and data is perfectly transparent about the types of evidence it uses.
- However, it may be useful to try and summarise the *range* of evidence available before we evaluate the evidence itself.
- What does this range/choice of evidence suggest about the writer’s ‘argument’?
5. Evaluating the evidence according to valid criteria

- The next step is clearly to evaluate the evidence.
- It is important to use valid criteria to evaluate the evidence.
- These criteria can be summarised as follows:
  - Check the date of the research
    - Note that in some areas (Law; Psychology; Natural Sciences) comparatively recent material may be ‘out of date’
  - Check the source of the information
    - Is it a fully peer-reviewed academic source?
Evaluating the evidence according to valid criteria

- Check for bias
  - E.g. pressure groups, charities etc. as noted
- Beware the allure of statistics and data
  - These always look ‘authoritative’
  - But there may be issues re selectivity, interpretation, size of sample etc.
- Beware obvious ‘persuader’ words
  - Most/many/surely etc.
- Be sceptical about percentages
  - 60% could be 6 ex 10 (very few people…), or 60 ex 100 or 600 ex 1000 (a lot of people!)! % alone is not necessarily significant!
Evaluating the evidence according to valid criteria

- Check sample size, where statistics are involved
- Check the sample is truly representative
  - In both quantitative and qualitative research
- Check the conditions of data research
  - With questionnaires etc. were there any inducements that affected the respondents?
  - Under what circumstances were the questionnaires given out etc.
- Check for emotive language
  - ‘cruel’; ‘intolerable’; ‘ridiculous’; ‘natural’; ‘normal’
6. Identifying the writer’s conclusions

- Look for the writer’s conclusions
- Clearly, these will come at the end of a piece of academic writing
- There may also be ‘sub–conclusions’ or signpost statements
  - Points in a piece of writing where a writer sums up what’s been said before and makes a transition to a new area
- Look for ‘trigger’ words – ‘hence’; ‘thus’; ‘therefore’
Does the conclusion rest on a (hidden) false assumption?

The preceding writing may be evidenced, referenced, academically ‘reliable’ etc. but the conclusion drawn from it may not be sound.

e.g. The idea that young children are negatively affected by mothers going out to work (Bowlby, 1951) subsequently criticised by many e.g. (Clarke-Stewart, 1988)

Bowlby’s sample (post-war, traumatised children) and his own ideological position have been critiqued as affecting the conclusion he draws.
GOOD LUCK...

- …For developing your critical thinking skills!
- The Student Learning Advisory Service
- www.kent.ac.uk/ulet/learning