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THE DISPOSITIONS OF CRITICAL THINKERS

Gerry Dunne

Most theorists agree that the ability *to think critically is distinct from the* disposition *to do so. Many of us may have the ability to be critical thinkers, but unless we are consistently and internally motivated to think and reason this way, these abilities are effectively redundant. Such dispositions are both intellectual character traits, and dispositions to behave in certain ways. As such, the first step to understanding critical thinking requires us to develop an operationalized taxonomy of critical thinking dispositions. To avoid explicating these dispositions* in abstracto*, this article draws upon a murder trial in order to demonstrate the central role dispositions play in critical thinking.*

Introduction

Most researchers agree that in addition to skills or abilities, critical thinking also involves dispositions.[1] Going back to Gilbert Ryle (1949) with his knowing-how and knowing-that distinction, the reason behind this is as follows – it is not enough to be able to do something – one must likewise be disposed to doing it. There is no point having the ability to do something, should one not be disposed to carrying out its performative function.

Accordingly, the *ability* to think critically is distinct from the *disposition* to do so. Dispositions comprise the DNA of a critical thinker, and can be viewed in terms of 'consistent internal motivations to act toward or respond to persons, events, or circumstances in habitual, yet potentially malleable ways'.[2] To effectively teach critical thinking therefore,

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educationalists must first develop a deep understanding of dispositions – in other words - the attitudes or habits of mind, otherwise referred to as a 'critical spirit'.

Building on this idea, this article aims to explicate an operationalized taxonomy of the dispositions embodied in the prototypical critical thinker. To illustrate the educational efficacy and performative function of each disposition, the article draws upon a murder trial to demonstrate the key role dispositions play in critical thinking.

The murder trial[3]

Here the defendant, Arlene, is charged with murder and voluntary manslaughter resulting in the death of her companion, Al, late one night in her parents' kitchen. Having spent the evening together, Arlene and Al drove back to Arlene's parents' house, where she was living at the time. The prosecutor argued that Arlene was jealous of Al's alleged relationship with another woman and lured him into the kitchen where she stabbed him in the heart with a kitchen knife. There were no witnesses to the stabbing.

Soon after the stabbing, Arlene went to her parents' room and woke them, whereupon they immediately called an ambulance. The victim was dead when the ambulance arrived. No-one except Arlene witnessed the events leading up to the killing, or indeed, the killing itself.

Though the defendant was charged with voluntary manslaughter as well as murder, for the purposes of edification, it is easier to deal with the charge of murder, as it was rigorously defined for the jurors.

The judge instructed the jurors that in order to sustain the charge of murder, the state must prove the following propositions:

(1) The defendant performed the acts which caused the death of the victim;

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(2) That when the defendant did so, she intended to kill or do great bodily harm to the victim, or she knew that her acts would cause death or great bodily harm to the victim, or she knew that her acts created a strong probability of death or great bodily harm to the victim;
(3) That the defendant was *not justified* in using the force which she used.
(4) If you find from your consideration of all the evidence that each of these propositions has been proved beyond reasonable doubt, then you should find the defendant guilty.
(5) Should you, on the other hand, find from your consideration of all the evidence that any of these propositions has not been proved beyond a reasonable doubt, then you should find the defendant not guilty.[4]

(1) 'Never block the path of enquiry'[5]

The first disposition can be summarized as follows: never adopt a methodological stance that would prevent the discovery of something that could turn out to be true. With reference to the case above, any juror who states that one cannot prove factual theses 'beyond all reasonable doubt' falls victim to a form of radical scepticism. Radical sceptics embrace the 'never accept anything' principle, and as a result, do nothing but block all meaningful progress from the very outset. What should prevent the acceptance of a factual claim is the discovery of its falsity through the detection of some other factual claim that is incompatible with it.[6] Further, any juror who argues that it is impossible to prove 'beyond reasonable doubt' that the defendant is guilty risks their default position being unassailably fixed at a 'not guilty' verdict in all prosecution cases.

In this scenario, the burden of proof is heaped on those attempting to prove a given conclusion beyond 'reasonable

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doubt'. According to this flawed approach, it is up to these lawyers to refute my methodological stance (there is no such thing, or knowledge which can be held as being proved beyond reasonable doubt), rather than for me to be rationally moved by the convicting force of the reasons and evidentiation used in support of a judgment governing what to believe or accept.

This, of course, is an impossible task for anyone trying to prove an identified fact, since my methodological stance (radical scepticism) precludes the discovery of anything that may contradict its stance, and by extension, any conclusion which falls outside this domain.

(2) Problem clarification: what is at issue here?

Secondly, critical thinkers must be disposed to seek out and offer clear statements of the question, including the methodological rubric employed and conclusions reached. To successfully carry out this function, critical thinkers must be skilled in the art of interrogative and forensic questioning. This mode of questioning refers to the art of asking the right questions, at the right time, in the right way, and in the right order. This forensic questioning technique is akin to a scalpel painstakingly slicing through all non-salient information and data, to clarify the precise nature of the problem at hand. Correspondingly, the quality of the answers generated as a result of the given enquiry will only be as good as the calibre of the questions used to elicit said responses.

There are three distinct, yet interrelated parts to this important disposition. Taking the example of the court case, it becomes clear the ideal critical thinker must seek and establish clarity about the question or issue at stake. For this purpose, there is an urgent need to understand context, especially the legal framework and parameters within which we are asked to reach a decision. For proposition 1, murder does not require intent to kill. To prove/disprove

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this proposition, jurors are instructed to determine beyond reasonable doubt whether 'the defendant performed the acts which caused the death of the victim'. This is ultimately a decision reached by means of weighing up the evidential force of the reasons given by the pathologist in relation to the following question: did the knife wound cause the death of the deceased?

The business of proving/disproving proposition 2 is a far more complicated matter. Here the jurors must establish whether the defendant 'intended to kill' or 'do great bodily harm', or if she 'knew that her acts created a strong probability of death or great bodily harm'. Proving intention on the part of the defendant to 'kill' or 'do great bodily harm' requires forging a sharp distinction between, on the one hand, there being a strong probability of great bodily harm, and on the other, the defendant's *knowing* that there was such a probability.

To put it another way, suppose a person called John is at a stag party, and by way of a prank, one of his friends (Michael) decides to scare him by changing his fiancé's number on his phone, so that his (Michael's) number now corresponds to the man's fiancé. Then, during the celebrations, he sends a text to the man posing as his wife saying he can't go through with the wedding because she is in love with a different man. In an inebriated state, the stag doesn't understand this is a ruse. Devastated, he goes into cardiac arrest and dies.

What this hypothetical scenario shows is why it is so important for critical thinkers to forge a clear distinction between 'a strong probability of great bodily harm', and the man *knowing* there was such a probability. In this case, the deceased stag's friend clearly didn't know he had a pre-existing heart condition and therefore his actions, whilst foolish and ill-considered, could not be characterized as him *knowing* there was a probability of great bodily harm.

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(3) 'Knowledge-claims based on reasons need to be stress-tested to determine their convicting force and cogency (*non fortiter catena quam anulus debilissimus*: a chain is no stronger than its weakest link)

Once reasons in support of a given belief, action or conclusion are isolated, critical thinkers are then disposed to interrogate the cogency or convicting force of these reasons. This requires subjecting reasons to a stress-test to determine which set of reasons is strongest. By subjecting reasons to a stress-test, the critical thinker exposes their flaws and weakest points. This process puts us in an ideal position to make an informed judgment as to which set of reasons is in fact, strongest, and by extension, worthy of provisional acceptance. Similarly, this also provides us with the precise location of which link/s are weakest, and accordingly require urgent revision or removal. In addition, the process of stress-testing the cogency of the reasons clearly exposes whether these reasons (links), for a given belief and action, are warranted.

A critical thinker is analogous to an engineer whose job is to determine whether a bridge can hold the weight of a car. Imagine the car is what a person believes or does, and the bridge is the reasons on which they base their judgment. The task of the critical thinker is to determine whether the bridge (reasons) are strong enough to stop the car (beliefs/actions) from dropping into the sea below. By exposing the weakest points on the bridge, the critical thinker shows the engineers (teachers, students) precisely where they need to improve their reasoning.

(4) Try to be well informed

This case requires the jury to arrive at an informed judgment on whether the defendant is guilty or not guilty. Such

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an evaluative judgment requires carefully sifting through expert testimony and marshalling relevant information pertinent to the case. Principally this means satisfying the principle of informative adequacy. Put simply: have I enough relevant information in order to reach an informed, reasoned conclusion?

The example of the court case raised requires the critical thinker to make an informed judgment on whether:

(1) The defendant performed the acts which caused the death of the victim; and
(2) That when the defendant did so, she intended to kill or do great bodily harm to the victim, or she knew that her acts would cause death or great bodily harm to the victim, or she knew that her acts created a strong probability of death or great bodily harm to the victim.

Proposition 1 asks jurors to judge whether the defendant 'caused the death' of the victim and also reach a conclusion as to whether the defendant 'intended to kill' or 'do great bodily harm' to the victim. For purposes of convenience, two conditions must be satisfied in order to warrant a murder charge: causality and intentionality.

This decision is chiefly based on the testimony of the expert witnesses (the pathologist). The two questions in play are: did the knife wound cause the death of the victim and did the defendant *know* that the act of stabbing the victim would probably lead to great bodily harm or death? To answer this question, jurors need to measure the force of the knife attack and decipher if the defendant knew that the force exerted was sufficient to bring about great bodily harm or death. This is a key feature in judging whether the last sub-condition of the second condition for murder had been satisfied.

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(5) Always seek credible defensible sources and evidence to substantiate your conclusions

In the context of the trial, the pathologist's expert testimony was pivotal in reaching a reasoned conclusion. Her testimony gave the jurors sufficient grounds on which to correctly adjudge the strength of the knife wound. The scientific observations on which she based her conclusion were also deemed credible and rationally convincing.

(6) Take into account the total situation

This disposition demands that the critical thinker take into account the totality of the case put in front of them. To determine if the defendant had an alternative to stabbing Al, it is first important to establish if the defendant had a viable and alternative course of action. This is problematic, given that the altercation leading to the death of the victim happened so quickly. Occasionally there is a tendency (which the critical thinker must avoid) to allow hindsight to cloud their judgment.

(7) Recognize and discard unwarranted assumptions

On this occasion, however, the jurors were satisfied that, even if he had threatened her, she still had the option of fleeing to her parents' room. What is curious about this deliberation is that the 'flight reflex', which is deeply embedded in each of us on an evolutionary level, often tends to be privileged over the 'fight reflex', and in keeping with this line of reasoning, ultimately deemed the more rational course of action. At all times, critical thinkers must exhibit an unwavering determination to carefully sift through and recognize unwarranted assumptions. Only then can these assumptions be forcibly excavated and discarded.

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(8) Focus on what is at stake, and the context within which this judgment must be situated

Though not every decision we must make asks us to select between two narrowly defined options, critical thinkers must keep in mind the issue at stake, especially within the context-specific particularity of the situation they are being asked to scrutinize. For the most part, this involves triaging the importance of the questions that need to be tackled. In this instance, the main question, 'Is she guilty of murder?', was in danger of being obfuscated by the sub-question of whether she knew that her acts created a strong probability of great bodily harm to the victim. Some jurors argued as if they thought the question was whether her acts *actually created a strong probability* of great bodily harm, rather than whether she knew this. They needed to be reminded of the actual wording.

(9) Always scrutinize the cogency of alternative hypotheses/courses of action (including alternative points of view)

It is imperative that critical thinkers be not only alert to possible alternatives, but they also be disposed to weighing up the convicting force and merits of said alternatives. Here the judge requires the jurors to make a judgment on whether the defendant's fleeing to her parents' room was a viable alternative or not. To make a cogent decision with regard to the above, each alternative course of action must be scrupulously interrogated to ascertain if it was in fact a viable alternative. The jurors' eventual conclusion was that this alternative was in fact a viable option after all. Such a conclusion resulted in them finding her guilty of voluntary manslaughter.

As one would expect, the conclusion reached by the jurors is contentious. There was an assumption on the part of a few of the jurors that a non-violent alternative was a more appropriate and justified course of action. The central

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assumption is that fleeing, rather than engaging in forceful resistance, was a more viable and justifiable course of action. In this particular case, many would find that since Arlene was threatened with violence, she would have been justified in stabbing the victim, and accordingly, should have been found innocent on the counts of both murder and voluntary manslaughter.

(10) Be open and fair-minded

It is often remarked that the mark of an educated mind is to be able to entertain a thought without accepting it. Critical thinkers must be adept at juggling different options. However, before this, they must be genuinely open-minded. Openness to diverse viewpoints is a positive disposition, but only if this openness is accompanied by a sense of impartiality and fair-mindedness.

In the case of the trial, the jurors unfortunately did not give sufficient thought to the legitimacy of engaging in forceful resistance. They simply 'just did not think of it'.[7] Instead, they determined that escaping to her parents' room was an option the defendant should have taken. Of course, the gap between 'should' and 'could' in this case is quite the jump. Arguably, a stronger argument could be made for the defendant resorting to forceful resistance.

(11) Avoid confirmation bias – only seeing evidence that supports your own hypothesis (whether implicitly or explicitly formed)

Human nature often predisposes us to consider only evidence that already confirms our implicit or explicit hypotheses or conclusions. Confirmation bias is a type of cognitive bias that involves a selective favouring of data which confirms previously existing beliefs or biases. For example, consider a person who believes that left-handed

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people are more creative than right-handed individuals. Whenever they meet a left-handed individual who happens also to be creative, they make the mistake of deeming this to be evidence that supports the view that left-handed people are more creative than right-handed people. Such people tend to discount counterexamples and avoid any data that may disprove or refute their original views or conclusions.

Confirmation bias can manifest itself in the work of medical professionals such as doctors. Frequently doctors formulate diagnostic judgments about a certain patient during their consultations. To confirm their original diagnosis, they ask questions and seek evidence that fits with this theory.[8] Sometimes this disposition results in clinicians overlooking evidence which disconfirms their original diagnosis. Confirmation bias presents a problem for the critical thinker. The first step for the critical thinker is to be aware of its existence. To immunize against its effects, it is crucial for the critical thinker to weigh all evidence carefully, including evidence that may disconfirm or refute a position you may be heavily invested in. In the case of the clinician, a good diagnostician will test his or her initial hypothesis by searching for evidence that directly contradicts it.

This can be explained more simply. Consider any judgment we make. Such a judgment about what to believe or do is (for the most part) based on reasons. To be a critical thinker, one ought to also scrutinize reasons which directly contradict one's position. Contrary reasons require the same treatment as the reasons on which you based your original judgment. Both sets of reasons require a rigorous stress-test to determine which are stronger, and by extension, more rationally cogent and persuasive.

(12) Suspend judgment when the evidence and reasons are insufficient

There is no shame in suspending one's judgment in the event that the reasons and evidence supporting a given

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belief, action or conclusion are deemed insufficient. Such a course of action is merely an exercise in prudence and good judgment.

In relation to forced choices, sometimes it is wise to opt for the least unacceptable alternative. Drawing attention to the limitations of alternative positions represents a legitimate means of arriving at the most unacceptable alternative. Demonstrating that a given alternative faces fewer difficulties than its ancillary counterparts, and accordingly, deserves our provisional acceptance (until a better alternative comes to light), exemplifies the performative merits of rationality.

With regard to the case, the jurors did consider the possibility that the defendant lured the victim into the house by taking his keys and putting them in her purse (where they were found). After careful consideration of the facts however, they eventually concluded that they held insufficient evidence to prove it was a premeditated act.

(13) Adopt an impartial and rationally justified position and only change your stance in the event that sufficient contrary evidence and *a fortiori* reasons move you

What is meant by a rationally justified position? To adopt a rationally justified position means aligning one's position with the strongest reasons possible. This position is largely based on the compelling and convicting force of impartial probative reasons and evidentiation.

Given that situations require judgments to be made when there is insufficient evidence to warrant a uniformly accepted conclusion, the critical thinker needs to ensure that their reasons are aligned with the best or strongest reasons available. Central to this process is that these reasons are always provisional, and thereby always held on the condition that stronger reasons for an alternative view or judgment may become apparent at any time. Where refutation of one's position emerges as a result of a cogent

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counterexample being posited, critical thinkers must always remain open to changing their minds.[9]

(14) Strive for as much precision as the situation permits

Considering the parameters of the court case, the pathologists' testimony played a key part in proceedings. Her re-enactment of the strength of the knife stroke, as she reconstructed it based on the measurements and shape of the entry wound, was of great help to the jurors in formulating their judgments vis-à-vis whether the defendant 'knew her acts' (the force used) created a strong probability of death, great bodily harm or death.

(15) Strive to get things as right as possible given the available data at hand

Where there is the matter of establishing the truth of the case, critical thinkers ought to determine it. For the purposes of the trial, the jurors carefully examined the testimony of the pathologist, and in particular, her re-enactment of the force exerted by means of the knife wound. Further examination resulted in jurors visiting the scene of the crime and making careful notes based on the layout of the cabinets in the kitchen. This confirmed the pathologist's conclusions about the angle and velocity used in inflicting the knife wound on the deceased.

(16) Metacognitive: be critical of one's own thinking and reasoning

There is an onus on critical thinkers to be critical of their own reasoning and judgments. This metacognitive or self-regulatory dimension is akin to a professional pianist playing a piece of classical music. He/she has been trained

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to be critical of their playing, their interpretation, tempo, and so on. Analogously, critical thinkers are trained to see the weakness in the judgments they make, because these judgments are based on reasons. The critical thinker is rationally moved by the strongest set of reasons in favour of a given position. That said, they also know that sometimes these reasons may not be strong enough to sufficiently warrant a given belief or action. New better reasons may present themselves which necessitate a contrary position being taken. As such, critical thinkers need to remain open to their judgments being discarded or revised, as and when conflicting evidence and reasons emerge that rationally move the thinker to formulate a different opinion.

The example of anti-virus software may exemplify this further. Think of an antivirus software program running on your computer in the background. As of today, it protects you against all 1,000,000 known viruses, Trojan horses, spyware and adware. But this database must be updated on a daily basis to account for the latest threats to your computer security. A critical thinker must approach the world in this way - their arguments, judgments and actions are governed by the rational endurance of the reasons offered in support of their arguments, judgments or actions. Reasons need to be sufficiently strong in order to rationally move a critical thinker. The reasons which we used to support a given judgment or action are temporally confined to the best available evidence we have at a given moment in time. These reasons should not be stagnant; accordingly, there is a pressing need for these reasons to be continuously re-evaluated, interrogated and stress-tested to determine whether they are sufficient to warrant our beliefs and actions.

(17) Be mindful of the fact that absence of evidence does not *always* mean evidence of absence

Evidence plays a central role in any form of rational reasoning and enquiry. However, the question of what can

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rightly be adjudged to be worthy of the name remains a contentious issue in education. Whilst there are no doubt instances where absence of evidence points towards evidence of absence, it is crucial to protect this sort of inference from tumbling into an unwarranted generalization.

Take for instance the view that there is no evidence to support the view that there are harmful effects from GMOs on the environment. Whilst there is currently no cogent evidence to support the argument that GMOs negatively impact on the environment, such a judgment fails to take into account that causation may take time to occur. To measure crops over a short period of time after introducing GMOs and infer that there are no negative consequences to the environment is the equivalent of deciding a house is completely watertight after just one storm. This judgment that the house is watertight after just one storm is based on the absence of evidence suggesting otherwise (a wet patch in the ceiling). Of course, it may take several storms for water to find a small gap in the lead flashing or find its way under some defunct silicone. In other words, causation may take time to manifest itself.

Critical thinkers must be vigilant to the fact that what may appear as a lack of evidence for a given claim *may not always mean* that this lack is evidence itself that it does not exist.

(18) Correlation does not equal causation

It is sometimes tempting to fall victim to fallacious reasoning such as *post hoc, ergo propter hoc* (after the event, therefore because of it). Other problems emerge when critical thinkers fail to consider the complexities of causality, either by means of failing to consider a common cause, failing to consider additional causes, reversing cause and effect, or a failure to consider a reciprocal causal relation. Critical thinkers must always guard against fallacious inferences of this nature.

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For example, we often see this type of error on a daily basis:

- Americans and British eat a lot of fatty food. There is a high rate of cardiovascular disease in the US and UK.
- French eat a lot of fatty food, but they have a lower rate of cardiovascular diseases.
- Italians drink a lot of alcohol but, again, they have a lower rate of cardiovascular diseases.
- The conclusion? Eat and drink what you want. What is more, you also have a higher chance of having a heart attack if you speak English!

(19) Employ their critical thinking abilities

The final disposition on our list relates to the importance of critical thinkers employing their critical thinking abilities. This may seem self-evident, but sometimes it suits us not to be critical of certain inferences or situations, especially those that we are heavily invested in, either emotionally or intellectually. Herein lies the importance of motivational dispositions; they maximize the chances of critical thinkers utilizing their cognitive abilities, not just in selected instances for instrumental gains, but rather, in *all* of their intellectual endeavours.

Conclusion

Dispositions are central to the development of any cogent and defensible concept of critical thinking. In many ways they overlap, but are also interdependent. As key motivational and intellectual traits, dispositions are the first step on the road to developing a more complete understanding of what it means to be a critical thinker. Though the list proffered here is in no way exhaustive, hopefully it

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should give a clear idea of the types of dispositions one ought to find in a critical thinker.

Gerry Dunne is Lecturer in Educational Theory and Practice, Marino Institute of Education. gerard.dunne@mie.ie

Notes

[1] S. Bailin, R. Case, J. R. Coombs, and L. B. Daniels, Conceptualizing Critical Thinking', *Journal of Curriculum Studies* 31.3 (1999), 285–302.

[2] R. H. Ennis, 'A Taxonomy of Critical Thinking Dispositions and Abilities', in J. Baron and R. Sternberg (eds.) *Teaching Thinking Skills: Theory and Practice* (New York: W. H. Freeman & Co. 1987), 1–26.

[3] R. H. Ennis, *Critical Thinking* (Upper Saddle River, NJ: Prentice-Hall, 1996), 17.

[4] R. Ennis, 'Critical Thinking: A Streamlined Conception', in M. Davies and R. Barnett (eds.), *The Palgrave Handbook of Critical Thinking in Higher Education* (New York: Palgrave Macmillan, 2015), 31–48, at p. 34.

[5] C. S. Peirce, *Collected Papers*, 2nd edn (Cambridge, MA: Harvard University Press, 1931), 58.

[6] N. Rescher, *Philosophical Dialectics: An Essay on Metaphilosophy* (Albany, NY: SUNY Press, 2004), 3.

[7] Ennis, 'Critical Thinking' 37.

[8] J. Groopman, *How Doctors Think* (New York: Mariner Books, 2007), 24.

[9] As evidenced by Wittgenstein and Putnam, both of whom were ridiculed for changing their views at the time.

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