

Thinking About Your Foolishness: Foolishness in Terms of Metacognition

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As long as there is self-awareness, there will be foolishness. With the ability to reflect on one's existence comes responsibility and a normative standard of behaviour. One perhaps distinctly human dimension of self-awareness is metacognition. 'Thinking about your thinking' is involved in regulating complex patterns of behaviour which may be maladaptive, self-destructive, or a poor expression of ability. In other words, metacognition is involved in regulating behaviour that is foolish. It also has the power to reveal potentially foolish thoughts that are incorporated in these patterns. So even at first glance metacognition and foolishness are related. To understand how they intersect we first need to explore metacognition in greater depth. However, the idea pervading this exploration is that foolishness can be viewed in terms of deficiencies in the metacognitive process. We can begin by first better defining foolishness, and then applying relevant metacognitive models to this definition.

Foolishness, to be used as a meaningful psychological concept, must fulfill two requirements. The first is that it be manifested in a pattern of behaviour.¹ There are of course, foolish acts, but it is not productive to talk about the cognitive mechanisms operating behind them, as an isolated foolish act can frequently be explained away by irregularities of the situation. The second requirement is awareness. The person who behaves foolishly must have the knowledge that what they are doing is foolish; otherwise the behaviour can be attributed to ignorance, which is a very different problem.² The individual's awareness incorporates motivational factors that keep the foolishness mechanism running despite knowledge that the behaviour is maladaptive. This character is the essence of foolishness as it is used in psychological literature. The two factors defined here,

¹ Vervaeke, J., (2008). Lecture.

² Perkins (2002), for example, makes the distinction between *blind folly* and *plain folly*.

knowledge of foolishness and its persistence can be readily examined in terms of metacognition.

Fernandez-Duque et al., (2000) divide metacognition broadly into metacognitive knowledge and metacognitive regulation. Foolishness as a persistent pattern of behaviour can be considered in terms of metacognition as a regulatory process, and the awareness of the foolishness of one's behaviour can be looked at as metacognitive knowledge.

To examine metacognition in terms of regulation or controlled processing, it can most generally be divided into two components: metacognitive monitoring and metacognitive control (Nelson, 1999). Nelson and Narens model metacognition hierarchically in terms of an object- and meta-level of awareness (Nelson & Narens, 1994); monitoring and control are the mechanisms by which the two levels interact. Metacognitive monitoring encompasses evaluative judgments of one's cognition and metacognitive control is the implementation of these judgments. Nelson, among others, takes a functional approach to metacognition, meaning that monitoring is thought to precede control. The monitoring process examines and analyses cognition, then affects it through the control process. This model can be used as a framework for looking at foolishness, in particular, the way foolishness is manifested as a self-regulation failure.

Various studies examine the relationship between brain areas responsible for meta- and higher cognition and self-regulation. An interesting case is Beaugard's 2007 study on the effects of metacognitive strategies on arousal during exposure to erotic film clips. fMRI imaging was used to see which brain areas were activated during the use of metacognitive "detachment" strategies to suppress arousal in contrast with a control group that experienced the stimuli normally. The use of metacognitive strategies was linked with increased activation of the anterior cingulate cortex and right lateral prefrontal cortex. The prefrontal cortex is implicated in several top-down control processes, most importantly in the inhibition of inherent response tendency and emotional regulation (Davidson et al., 2000; Damasio, 1995). The target group, unlike the control group, showed no significant activation in the amygdala (an emotion processing area). Thus, Beaugard has demonstrated that metacognitive strategies change the way arousing stimuli is experienced in the brain and can activate brain areas responsible for behavioural control.

At first glance it may seem as if we have successfully applied Nelson and Naren's model of metacognition to view foolishness as a failure in self-regulation: The foolish individual receives monitoring information and fails to use proper control strategies to regulate their cognitions. This leads to

foolish thoughts and thus foolish behaviour. Was that not the idea? The problem with this account is that painting foolishness as a failure in self-regulation quickly emerges as overly simplistic. After all, self-regulation can be foolish as well. One can't deny that an obsessive dieter who is willing to skip meals and try hazardous drugs is self-regulating. One can call him foolish, however. The persistent, self-organized brand of foolishness defined above cannot be productively examined in terms of a *malfunction* in self-regulation. 'Malfunction' is a poor word choice since the process itself is functioning just fine. But how can that be?

The claim that foolishness has nothing to do with a failure in self-regulation may not seem plausible under the traditional account of self-regulation, namely, that it is a proper assertion of willpower. This is a standard notion in folk-psychology and psychology alike. For instance, Ayduk and Mischel (2002) ascribed foolishness to situations in which one's willpower fails to reign in the 'hot' impulsive, emotional system despite the fact that the individual knows the right action to take. This account may seem plausible, but upon further investigation, it does little to explain the kind of foolishness outlined earlier. If foolishness can be remedied by use of one's willpower, why do individuals continue to display maladaptive behaviour? What mechanism explains the foolishness itself, as a self-organizing pattern? These questions are better addressed to a more sophisticated model of self-regulation.

Recent neurological research (Lewis & Todd, 2007) views self-regulation as a coordination among brain systems. Successful self-regulation is defined in terms of where the epicenter of control is for the self-regulation process rather than a 'hot' emotional system subservient to a 'cool' cognitive one. In this case, foolish behaviour is a result of the self-regulation process being centered in limbic areas and the bottom-up regulation of cortical activity of inputs from the amygdala. This is what is referred to in folk psychology as "weakness of will" or "overwhelming emotions" (discussed in Perkins, 2002). The classic way in which we view self-regulation (i.e. domination of the 'cool' system) is as coordinated brain activity for which the epicenter of control is the anterior cingulate cortex and other areas of the prefrontal cortex. These brain regions allow for purposeful control of one's actions and thus the top-down regulation of limbic (emotional) processes (Lewis & Todd, 2007). Thus, through this model, foolishness is a self-sustaining pattern of behaviour because it is a self-regulation mechanism rooted in the 'wrong' part of the brain.

This model provides a more detailed account of how the brain areas that we associate with cognitive control really function in a more integrated

manner than we first imagined, however it remains incomplete. An individual can have a self-regulation process whose locus of control is in the prefrontal cortex and which is characterized by top-down control of limbic areas but she can still display foolish behaviour if the cognitions at the top are wrong. Foolish self-regulation is procedurally no different from wise self-regulation. It is the specific beliefs and emotions involved that make the difference. This is why it is crucial to look at how one's metacognitive knowledge interacts with the control/monitoring system.

Dweck provides an excellent illustration of the dramatic effects of one's metacognitive knowledge on self-regulated behavioural patterns. Commenting on the self-destructive beliefs that "make smart people dumb", Dweck cites poorly informed metacognitive beliefs as a source of foolishness in intelligent individuals (2002). More specifically, a belief that intelligence is fixed and that performance evaluations measure overall intelligence instill an aversion to situations that may expose intellectual inadequacy. Thus, this item of metacognitive "knowledge" instantiates a behavioral pattern of challenge avoidance that results in eventual atrophy of one's cognitive abilities. The remedy is a metacognitive belief that focuses on effort and the plasticity of intelligence, and thus makes the individual more likely to place themselves in situations that challenge and expand their mental abilities.

Dweck's studies, although encouraging, spur questions. How did the 'foolish' participants come across their metacognitive beliefs? And how did those beliefs act to instantiate a destructive pattern of behaviour? The latter question is an important one since foolishness, as mentioned earlier, requires awareness. It is a case of having the requisite metacognitive knowledge where that knowledge is not reflected in one's behaviour.

Perhaps the questions above are not for Dweck, but rather for Nelson and Narens. The functional account of metacognition does not explain how metacognitive knowledge relates to the control/monitoring process, nor does it match up to more holistic views of self-regulation emerging in neuroscience. Recently, researchers have acknowledged that metacognitive knowledge and related awareness seem to be crucial to the function of the metacognitive regulation system (Fernandez-Duque et al., 2000, Panaoura & Philippou, 2007). Another problem for the original model is that it is hierarchical and ordered, stating that metacognitive monitoring processes influence control processes (which is how metacognition influences cognition). Koriat et al. (2006) have tried to bring awareness to the reverse process, by which control processes influence monitoring. They call this process CM, as opposed to the traditional MC model. Furthermore, they

delineate two ways in which metacognition can function: the sequential model, in which metacognition reverts from MC to CM in sequence, and the simultaneous model, in which both processes function at the same time. Koriat et al. present a much-needed look outside the traditional boundaries of how metacognition functions but they have just begun to scratch the surface. The sequential model is still a hierarchical one, and no definitive account of the simultaneous model is provided. Thus no parallel model for metacognition has definitively emerged. The importance of a parallel model will be further clarified in the context of how a self-destructive pattern is defeated, but it has not gone unnoticed in scientific literature. Dent (2003), for example, has urged social scientists to consider the inadequacy of a linear cause-effect framework in explaining complex phenomena and to instead adopt a mutual causality model.

An example of a parallel dual-process model is the one used by Stanovich and West (2000) in explaining the gap between descriptive and normative rationality present in individuals. Two processes function in parallel: an efficient, heuristic-based System 1 and a flexible, analytic System 2. Systematic individual differences in rationality are a result of differences in coordinating the two systems at the intentional level as opposed to differences in intelligence present at the algorithmic level. In a similar vein, we can imagine a parallel dual-process foolishness model in which intentional-level cognitions and metacognitions monitor and control each other simultaneously while both maintain a balance between System 1 and System 2 processes.

This more complex model is well suited to fill the gaps left by the original. The effect, or lack thereof, of metacognitive knowledge is clarified by a distinction made by Teasdale (1999) between metacognitive knowledge and metacognitive insight. Metacognitive knowledge is present only in a declarative form; it can have no real effect on the controlled processing of the organism. In order for a real change to occur, i.e. in order for the metacognitive knowledge to be manifested, one needs to have metacognitive insight at the intentional level. Only insight allows for the knowledge to be put into action and this insight can only be gained through direct experience. This effectively addresses how it is that foolish behaviour persists in the presence of metacognitive knowledge. It is due to a lack of insight. We have seen the complexity of a self-regulation system and know that metacognitive knowledge is not enough to disrupt such a system already in place. That disruption would require an equally complex system, one that can only be built within a parallel model. This is because insight arises from a shift in thinking mode and not only an improvement of the self-regulation process.

For if foolishness were merely a matter of self-regulating behaviour processes, this model would solve nothing. One would have to set up successful self-regulating systems for all aspects of life vulnerable to foolishness, which would be an overwhelming if not absurd task. What is needed to overcome foolishness is a meta-level of regulation; and this is exactly what a dynamic model provides. The individual is no longer constrained to situation-specific instances of insight because insight is a case of not only different subject matter for thought but a different way of thinking. Metacognitive processes functioning in parallel with cognitions allow a person to see the effect of her current cognitions. And this is the level of awareness required to circumvent foolish behaviour. It is distinct from the awareness present in having metacognitions or knowledge that one is acting foolishly since it encompasses the entire regulatory process. Awareness of the effect of cognitive processes allows one to unravel them if they are destructive. Otherwise, lack of meta-awareness permits foolish patterns to perpetuate.

The notion of insight as the key to banishing foolishness has a rich heritage. Awareness of one's thinking is at the core of the Buddhist meditative tradition, which is why Teasdale refers to a mental process imbued with metacognitive insight as mindfulness. Another comparison that can be drawn is that of process-oriented thinking,³ in which one is no longer focused on the output of cognition (product-oriented) but rather on the process of thinking itself. Process-oriented thinking is responsible for Dweck's participants' beneficial metacognitive beliefs, since their focus is the process of learning and not the appearance of intelligence.⁴ Finally, this form of insight goes back to Plato, whose Socratic dialogues were aimed at dispelling foolish beliefs in both Socrates' conversation partner and Plato's audience. Many have wondered why Plato ended his dialogues with *aporia* as opposed to providing an account of piety, say. What is accomplished in leaving the reader in the cold? The answer is simply: Even if Plato were to tell you what piety is, you would have no reason to believe him. In order to have a *logos* of piety, you need to reflect and experience it for yourself.⁵ This is the nature of insight and the reason why without it, foolishness persists.

References

³ Vervaeke, J., (2008). Personal communication.

⁴ *Ibid.*, (2008). Lecture.

⁵ Gerson, L. P., (2007). Lecture.

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