Models of anxiety

Psychologists have considered anxiety from different perspectives. Biopsychologists have discovered that structures in the brain – the amygdala and hippocampus – play a role in creating anxiety. A candidate for the “anxiety gene” is PLXNA2. Cognitive psychologists are much more interested in how we appraise some situations as threatening and others as manageable. From the Psychodynamic perspective, anxiety comes from conflicts in the unconscious mind that we don’t acknowledge and the power of the Super-ego to “punish” us for forbidden desires or urges. Other researchers continue to look for a connection between anxiety and the Yerkes-Dodson Law.

Fazey & Hardy (1988) – Catastrophe theory

Lew Fazey & John Hardy were two British researchers at the University of Wales who were dissatisfied with the inverted-u theory as a description of anxiety. They proposed three criticisms:

1. Somatic (physical) anxiety is not separate from cognitive anxiety – the one affects the other
2. When someone passes the optimal point and their performance drops, it doesn’t always tail off gradually but often plummets suddenly
3. Even if you “tweak” a player’s anxiety back to the optimal level, performance doesn’t usually recover from a collapse like this

Fazey & Hardy suggest a different set of rules for how anxiety affects performance:

- Cognitive anxiety is the “splitting factor” which determines whether arousal has a slow and gradual effect or a sudden and dramatic effect on performance
- The inverted-u is fine for showing how arousal affects performance with low cognitive anxiety, but with high cognitive anxiety and different pattern occurs
- Under high cognitive anxiety, if arousal goes past the optimal point a CATASTROPHE will occur – performance drops suddenly; John Hardy compares this to a breaking wave

If you look at the graph [right] you can see how, when cognitive anxiety is low, performance rises to an optimal point with arousal then dips back down again – a classic inverted-u. But when cognitive anxiety is high [closer to the viewer], performance falls off a cliff after the optimal point and even arousal drops slightly. One factor that might stop the wave from “breaking” is self-confidence.

After a catastrophe, performance doesn’t go back to its high level even if cognitive anxiety drops back down again. Instead, cognitive anxiety has to drop back to baseline so that performance can start increasing again from scratch. This pattern is called hysterisis – the tendency for things not to go back to their old state once a critical point has been passed.
**Contribution to sport psychology**

Catastrophe Theory has been very well received because it fills in some of the gaps in the inverted-u relationship between arousal, anxiety and performance. It would seem to explain the experience of “choking” that seems to affect even elite sports players. For example, Czech tennis star Jana Novotná played Steffi Graf in the 1993 Wimbledon women’s singles final. After losing the first set, Novotná took a commanding lead and was playing for championship point, 40-15. Instead, she lost her nerve and began missing easy shots. When Steffi took the prize, Novotná cried onto the Duchess of Kent’s shoulder. (A happy ending: Jana Novotná came back to win at Wimbledon in 1998).

Hardy *et al.* (1994) put the theory to the test by looking at eight crown green bowlers. The bowlers were asked to bowl three balls at a jack on two different days. The first day was the control condition (normal anxiety) but on the second day they were given “threatening” instructions. The CSAI-2 was used to confirm that the bowlers did in fact have higher cognitive anxiety on the second day. The players were given running tasks to increase their physical arousal and their heat rate was measured on both days. On the first day the results followed a weak inverted-u but on the second day performance was much better, but dropped away catastrophically once heart rate got too high.

**Evaluation**

This is a thoughtful and ingenious theory that seems to explain what happens in the real world (face validity) and has been backed up by empirical research. It makes a break with standard thinking about anxiety by suggesting that cognitive anxiety can actually be good for performance – which ties in with the experiences of many athletes who claim they play better when worried. However, high cognitive anxiety poses the risk of a catastrophic crash in performance if arousal gets too high.

A lot of psychologists approve of Catastrophe Theory for its sophistication. However, Diane Gill (1994) criticized the theory for being too complicated and difficult to test. For example, at what point does cognitive anxiety stop producing simple inverted-u relationships and start creating the “breaking wave” relationships of a catastrophe? Just how exactly does self-confidence fit into this? How does anxiety affect the hysteresis pattern – at what point can an athlete start to rebuild their performance again? Other researchers, such as Rainer Martens (1990) are not convinced that cognitive anxiety can improve performance.

**Comprehension**

1. How is cognitive anxiety supposed to relate to performance?
2. Give an example of cognitive anxiety affecting physical arousal.
3. Why is cognitive anxiety a “splitting factor”?
4. What is meant by Hysteresis? Give a sporting example of hysteresis in action.
5. Why is the relationship between arousal and performance like a breaking wave?
6. How can athletes be prevented from having catastrophes?
7. What needs to be done with athletes after they suffer a catastrophe?
8. Draw graphs showing the relationship between arousal (heart rate) and performance for Hardy’s bowlers, on Day 1 and Day 2.

**Exam Question**

(a) Outline a model of anxiety in sport. [8 marks]
(b) Evaluate the usefulness of research into anxiety in sport. [14 marks]