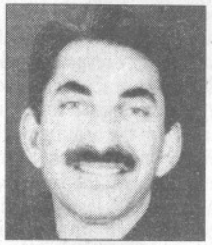
The inverted U theorem

PSYCHOLOGY



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Psychologists established that the relationship between pay, motivation, and performance in organisations was such that higher pay led to higher motivation and better performance only up to a certain point. If pay or monetary rewards were increased beyond the optimal level there was no corresponding improvement in performance

THE INVERTED U THEORY OWES ITS name, and its origin, to the early twentieth century experimental psychologists Yerkes and Dodson. Their experiments on mice in 1908 led them to the discovery of a relationship between the level of arousal in mice and its effect upon their performance. They noticed that the level of arousal was positively related to performance, such that in selecting and performing a task in a maze the mice having high arousal levels performed better.

But, it was not a linear relationship. The results of a series of experiments showed that when the arousal level was raised, the mice showed a corresponding improvement in learning the task. However, when arousal level crossed a certain point, the learning was adversely affected. Simply stated, the Yerkes-Dodson law, as it has come to be known now, states that learning improves as the level of arousal rises, until that level reaches an optimal point beyond which an increase in arousal instead of facilitating learning impacts it negatively. The relationship between arousal and skill acquisition could thus be diagrammatically represented in the form of an inverted U. (When the vertical axis represented learning and the horizontal axis represented the arousal level, the relationship on the graph resembled an inverted U.)

Many years later sport psychologists witnessed the same phenomenon in sportspersons and athletes. In the seventies and eighties Klavora, Bernado, Gould, Simons, Vevera and a host of other sport psychologists reported — based upon their research findings — that the best sports/athletic performance was obtained when the sportsperson was optimally aroused. When she/he was under- or over-aroused, the performance suffered, and was less than the person's potential. These observations were based upon research in such diverse sports as swimming, basketball, and pistol shooting.

By the time, games and sports had become an extremely lucrative business, generating worldwide revenue worth not billions, but trillions of dollars. Sports performance had therefore come to command astronomical sums of money. All kinds of genuine and not-so-genuine people (read 'experts') had arrived on the scene to claim their share of the bounty. Psychological researchers also joined in.

Whereas the downside of the huge revenues was the introduction of life threatening drugs in sports, such as anabolic steroids; the upside was the in-depth research into performance-related physical and psychological factors that impact performance. Dozens, if not more, factors that influence sports performance were identified, isolated, thoroughly understood, and their dynamics manipulated to bring about even better performance. One such factor was the relationship between arousal level and sports performance.

Research showed that the relationship was curvilinear, such that low arousal led to low levels of performance, the performance improved when arousal level increased, but fell again if it increased beyond a certain optimal point. So the relationship between (sports) performance and arousal levels in humans was also found to be like an inverted U, as in case of mice.

In the nineties, psychologists started to experimentally explore the relationship between monetary rewards, motivation, and performance in an organisation. Kerr, Yoshida, Pierce and others saw in various researches that the relationship between pay, motivation, and performance in organisations was also such that higher pay led to higher motivation and better performance only up to a certain point. If pay or monetary rewards were increased beyond the optimal level there was no corresponding increase in motivation leading to better performance. In fact, if monetary rewards went beyond the optimal level, motivation to work for the organisation decreased and performance suffered.

Research in animal laboratories, in sports-related studies and in organisations across the globe, indicated therefore that motivational levels impact performance and that this relationship is curvilinear.

TRANSFERENCE CONTROL

Freud has written extensively on transference. In orthodox psychoanalysis the term is used to explain the relationship between the patient and the analyst. It may take three forms; positive transference when the patient develops a feeling of affection, warmth, positive regard, or love for the analyst. Negative transference when she develops jealousy, envy, dislike or hatred for the analysts, and in relatively rare cases counter-transference, when the analyst likes or dislikes a patient.

Some psychoanalysts had noted that some of their patients developed negative transference depending, among other psychodynamic factors, upon the frequency and duration of the sessions. If the analytical sessions were held on a daily basis, some of them hypothesised, the probability and frequency of development of negative transference increased. If the analyst scattered the sessions, it receded. One of the techniques of controlling or resolving negative transference, therefore, was to decrease the contact between the patient and the analyst. In a number of reported cases this had the desired effect.

Could one invoke the inverted U theorem to explain the phenomenon? One could hypothesise that heightened motivation in the patient could adversely affect her performance. The desire to see the analyst could be considered the 'motivation' and ridding herself of her neurosis as 'performance'. The inverted U theorem could then perhaps explain the phenomenon.

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