



Emotions in Experimental Psychology

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"Today, after a century of empirical studies concerning man, there is need to reconstruct experimental findings in the light of well-established philosophical achievements in order to obtain that integral view of human nature which is firm and certain but ever open and encouraging to new discoveries. . . . The spirit of Aristotle, logician and philosopher, provides the vast blueprint for the integration of philosophy with psychology, of psychologies with each other, of all scientific achievements with common knowledge, and, in the method of Aquinas, of all reason's progress with theology."

—Vincent Edward Smith, Ph.D.

Despite the tremendous amount of study and research done in recent times by empirical psychologists with the view to acquiring a more precise and comprehensive knowledge of emotions as they are found in man, the results have been disappointing. Each researcher comes up with his own theory, and no two are in complete accord. Lack of consistent terminology, deficient knowledge of proper causes and the postulation of gratuitous *a priori* conceptions, in addition to insufficient rapport among the various branches of psychology, have all contributed to the confusion and contradiction found today within the psychology of the affective processes. Hence the task at hand of describing the modern concept of emotion in the light of experimental psychology is not an easy one. This article, therefore, will limit itself to those general statements about the emotions which enjoy wider acceptance, avoiding highly problematic areas as much as possible except when necessary for historical reasons or for clarification.

Emotions in the Personality Structure

It will be advantageous for an understanding of the nature of the emotions to begin this exposition by showing how the emotions fit in the total personality make-up of the individual. While expressing the wholeness or uniqueness of the individual, personality itself is a complex of many variables, both endogenic and exogenic. Personality is the product of continuous interaction on all levels of the psychosomatic unit, vegetative, motor, perceptual, emotional, intellectual, volitional and social. These various constitutives of the personality can be conveniently grouped under three headings: morphology, temperament and character. It is in the second of these, i.e. in temperament, that the emotions are found.

A person's temperament is determined by noting the predominance of certain personality traits over others in the individual. For example, the observations of William H. Sheldon led to the discovery of three major components of temperament, each determined from a list of twenty personality traits. His three components are (1) *viscerotonia*, manifested by relaxation, extraversion of affect, love of food, sociality, etc.; (2) *somatotonia*, manifested by bodily assertiveness and the desire for muscular activity; and (3) *cerebrotonia*, manifested by inhibition of both viscerotonic and somatotonic expression, and by hyperattentionality or over-consciousness.¹ Sheldon himself, however, never attempted to break these traits down into their more basic constituents

since he made his judgments from listings of personality traits already firmly established by other psychologists. It was almost twenty years later when Robert Plutchik discovered that personality traits were nothing other than constellations or mixtures of the more basic emotions. Thus aggressiveness, one of the major traits in Sheldon's somatotonics, is seen to consist in a mixture of the emotions of expectancy and anger; the love and friendliness which characterizes the viscerotonic temperament, a mixture of joy and acceptance. Using this process of reducing personality traits to emotion-components, Plutchik succeeded in developing a comprehensive classification of the emotions in man which is in many ways more satisfactory than that of earlier experimental psychologists. We will return to Plutchik later on to discuss his conception of emotion since his theory incorporates much of the previous findings of other experimental psychologists. But first, let us attempt to clarify the notion of emotion by distinguishing it from the concept of instinct, with which it is often confused.

Emotion vs. Instinct

Having seen very briefly how emotion fits into the whole personality structure and that they never act independently but always within the psychosomatic unit, interacting with other components of the personality, a few words now about the instincts, the most basic of all personality factors. For this phase of our investigation, we will rely heavily on Ronald Fletcher, who, more than anyone else, has succeeded in correlating and synthesizing the many variant opinions on this subject into a coherent whole.

The modern notion of instinct includes three distinct factors: (1) knowledge of the useful or harmful characteristics of an object; (2) the experience of some sort of *emotion* as a result of this knowledge; and (3) motor behavior, whose particular pattern is fixed by the nature of the knowledge and emotions that give rise to it. With regard to these three elements of instinct, i.e., cognition, emotion and conation, most modern-day psychologists are in agreement, but with regard to the number of instincts in man, there is wide divergence. Freud holds that all the instinctual tendencies of man can be subsumed under two basic headings: the life instincts and the death instincts. McDougall names the instincts in accordance with the observed "ends" of the various sequences of instinctive behavior. Thorndike offers a classification which is simply a list of innate responses to stimuli. This dif-

ference in methodology results in thirteen instincts for McDougall and forty for Thorndike, the disparity being due chiefly to the fact that Thorndike names several "original responses" which McDougall groups together under the heading of the "ends" in which a sequence of these responses terminates.² Fletcher divides all the instincts into primary impulses (the instincts proper) and ego-tendencies (general instinctive tendencies), with the following listing:

- I. *The Instincts Proper*: Breathing, Eating, Drinking, Maintaining comfortable temperature, Sleeping & Waking, Caring for comfort of body-surface, Fearing, Excreting, General Activity (play, curiosity and hunting), and Sexual Activity (eroticism and courtship, sexual "fighting", parental activity, homemaking and the formation of elementary family).
- II. *General Instinctive Tendencies*: Pleasure-Pain, Attachment-Avoidance, and Positive and Negative Ego-Tendencies (the general tendency to manipulate or withdraw from the social environment).³

These instincts are common to all members of the human species by virtue of their heredity endowment, and they set the basic and unalterable ends of human activity, about which by far the greater part of complicated social behavior and social organization is centered. In his enumeration of the instincts, Fletcher includes only

those features of human experience and behaviour which . . . can reliably be said to have a definite inherited neurophysiological basis, together with a subjectively distinguishable appetitive or conative element, neither of which is learned, but which are closely correlated with each other and with a certain sequence of activity terminating in definite consummatory behavior and a definite end-state.⁴

The reason why Fletcher's classification is superior to that of Freud, McDougall or Thorndike rests precisely in this, that he used as his criteria the three characteristics of instincts given earlier, whereas the others did not, even though they did subscribe to them.

The important point for this discussion is that the great instincts of human nature all have their accompanying and typical emotion. This was first established by Drever,⁵ and offers a valuable avenue for the determination of emotions in man.

Emotions in Man

In addition to being able to derive the emotions from personality traits using factorial analyses and statistical methods, Plutchik was also

able to make use of a classification of instincts as an additional help and guide for setting up his list of emotions. The grouping of instincts he employed for this purpose differs somewhat from that of Fletcher, but it is substantially the same. According to Plutchik, there are eight basic instincts, which he called "basic types of adaptive behaviour": Incorporation, Rejection, Destruction, Protection, Reproduction, Deprivation, Orientation and Exploration. Plutchik suggests that "these represent the basic dimensions of emotions . . . [they are] the prototypes of all emotional behaviour."⁶ Relating these basic impulses to the emotions derived from personality traits, Plutchik was able to determine that the eight primary emotions were: Joy, Acceptance, Surprise, Fear, Sorrow, Disgust, Anticipation and Anger. But this is not all. Plutchik also recognized that in addition to qualitative differences, emotions also varied quantitatively, i.e., each of the primary emotions could manifest itself in varying degrees of intensity. For example, the emotion of joy when present to a high degree is no longer called joy but ecstasy; at lower levels of intensity, joy becomes happiness, pleasure, serenity and calmness, in the order of decreasing intensity. Plutchik's final enumeration of the emotions with the mean judged intensity of synonyms for each of the eight primary emotion dimensions is as follows:

DESTRUCTION: Rage, Anger, Annoyance.

REPRODUCTION: Ecstasy, Joy, Happiness, Pleasure, Serenity, Calmness.

INCORPORATION: Admission, Acceptance, Incorporation.

ORIENTATION: Astonishment, Amazement, Surprise.

PROTECTION: Terror, Panic, Fear, Apprehension, Timidity.

DEPRIVATION: Grief, Sorrow, Dejection, Gloominess, Pensiveness.

REJECTION: Loathing, Disgust, Dislike, Boredom, Tiresomeness.

EXPLORATION: Anticipation, Expectancy, Attentiveness, Set.

Besides this implicit intensity dimension, Plutchik also noticed the bipolar nature of the primary emotions, e.g., joy is opposed to sorrow, surprise to expectation, etc. These two observations led him to search for some kind of structural model or analogue to represent the organization and properties of the emotions. This he found in the theory of color mixture, a parallel which McDougall had noted many years

before (1921). If we look at the chart on page 252, it is evident that any two adjacent pair of primaries could be combined to form an intermediate mixed emotion, just as any two adjacent colors on a color-wheel form an intermediate hue. A mixture of any two primaries may be called a dyad, of any three primaries, a triad. These dyads and triads may be formed in different ways:

If two adjacent primaries are mixed, the resulting combination may be called a primary diad. Mixtures of two primary emotions which are once removed on the chart may be called secondary dyads, while mixtures of two primaries which are twice removed on the chart may be called tertiary dyads. The same general method of designation would apply to triads as well.⁷

This resulted in an interesting set of mixed emotions, such as pride (anger + joy), guilt (fear + sorrow), shame (fear + disgust), pessimism (sorrow + expectancy), fatalism (expectancy + acceptance), etc. Here is the list of mixed emotions which resulted.

PRIMARY DYADS: Pride, Love, Curiosity, Alarm, Despair, Misery, Cynicism, Aggression.

SECONDARY DYADS: Delight, Submission, Disappointment, Shame, Scorn, Optimism, Pessimism.

TERTIARY DYADS: Resentment, Guilt, Resignation, Anxiety, Sullenness, Fatalism.⁸

An examination of this list of dyads shows that many of them represent feeling states which would seem to be relatively persistent in an individual; in fact, it became clear to Plutchik that the formation of personality traits is related to the development of mixed emotions.

Implications of Modern Theories of Emotion

Until recent years, learning was often looked upon as a purely cognitive process. In contrast to this, modern theories of emotion emphasize that the affective aspects of experience are of the most fundamental importance in the learning process. Our present knowledge of instinct and emotion brings us to the realization that cognitive and affective aspects of experience are not, strictly speaking, separable parts of experience, but intimately connected aspects of every human experience. Man is a whole, and acts as a whole. In the process of learning, the affective elements of experience are always involved.

This has been, for many modern psychologists, a "new" discovery, and has led to great advances in the psychology of learning.

Another implication to be derived from the modern theory of emotion affects morality. We can now hold that the primary human impulses (instincts) and their corresponding emotions are common to all members of mankind. Psychology has shown that the basic impulses underly all moral conflict, and refer also to elements of social organization which are necessary and common to all human societies. Perhaps this could serve as a valuable fundament for a more satisfactory explanation of the natural law.

Moreover, the increased understanding of the instincts and emotions afforded by experimental psychology has contributed a great deal to the development of new psychotherapeutic methods. Many mentally afflicted people are being helped back to normality today who had to be abandoned as hopeless only a few decades ago.

Conclusion

Experimental psychology has come a long way in its study of the emotions. Instead of the eleven "passions" of Thomas Aquinas, we now have impressive lists of "emotion-dimensions," expressing not only qualitative but quantitative differences as well. A great deal more is known about the bio-chemical basis of the emotions and of their accompanying physiological changes. But at the same time, there is still much diversity and confusion—there is a great need for a philosophical grounding, for unifying principles, for greater liaison between the allied sciences of man. Dr. Smith, whom we quoted in the epigraph to this paper, has suggested that the combined philosophy and theology of Aristotle and Aquinas could provide such a grounding. It appears that he was right; in at least one case, a return to Aristotelian-Thomistic teaching was most rewarding.

We refer here to the work of Dr. Terruwe, neurologist and psychiatrist. Sensing that something was lacking in modern psychodynamic theories, Dr. Terruwe developed a new theory of the neuroses based upon *both* traditional psychology and modern dynamic psychiatry. Her results were so impressive that one psychologist had this to say about it:

Dr. Terruwe's work is an important contribution to a synthesis in which the old is not rejected merely because it is old, nor the new accorded a *priori* acceptance, but in which major traditional thinking

provides the light that guides us in the solution of problems in psychology and psychiatry.⁹

It is our hope that Dr. Terruwe will have many followers.

NOTES

¹ William H. Sheldon, *Varieties of Delinquent Youth* (New York: Harper & Brothers, 1949), pp. 26ff.

² Ronald Fletcher, *Instinct in Man* (New York: International Universities Press, Inc., 1957), pp. 100f.

³ *Ibid.*, pp. 309ff.

⁴ *Ibid.*, p. 304.

⁵ *Ibid.*, p. 63.

⁶ Robert Plutchik, *The Emotions: Facts, Theories and a New Model* (New York: Random House, 1962), p. 61.

⁷ *Ibid.*, pp. 115f.

⁸ *Ibid.*, p. 120.

⁹ A. A. A. Terruwe, M.D., *The Neurosis in the Light of Rational Psychology* (New York: P. J. Kenedy, 1960), p. xii.

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