

Hans Eysenck: Summarized

Authored by
mohammad looti

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This chapter is devoted to theories of temperament. Temperament is that aspect of our personalities that is genetically based, inborn, there from birth or even before. That does not mean that a temperament theory says we don't also have aspects of our personality that are learned! They just have a focus on "nature," and leave "nurture" to other theorists!

The issue of personality types, including temperament, is as old as psychology. In fact, it is a good deal older. The ancient Greeks, to take the obvious example, had given it considerable thought, and came up with two dimensions of temperament, leading to four "types," based on what kind of fluids (called humors) they had too much or too little of. This theory became popular during the middle ages.

The sanguine type is cheerful and optimistic, pleasant to be with, comfortable with his or her work. According to the Greeks, the sanguine type has a particularly abundant supply of blood (hence the name sanguine, from sanguis, Latin for blood) and so also is characterized by a healthful look, including rosy cheeks.

The choleric type is characterized by a quick, hot temper, often an aggressive nature. The name refers to bile (a chemical that is excreted by the gall bladder to aid in digestion). Physical features of the choleric person include a yellowish complexion and tense muscles.

Next, we have the phlegmatic temperament. These people are characterized by their slowness, laziness, and dullness. The name obviously comes from the word phlegm, which is the mucus we bring up from our lungs when we have a cold or lung infection. Physically, these people are thought to be kind of cold, and shaking hands with one is like shaking hands with a fish.

Finally, there's the melancholy temperament. These people tend to be sad, even depressed, and take a pessimistic view of the world. The name has, of course, been adopted as a synonym for sadness, but comes from the Greek words for black bile. Now, since there is no such thing, we don't quite know what the ancient Greeks were referring to. But the melancholy person was thought to have too much of it!

These four types are actually the corners of two dissecting lines: temperature and humidity. Sanguine people are warm and wet. Choleric people are warm and dry. Phlegmatic people are cool and wet. Melancholy people are cool and dry. There were even theories suggesting that different climates were related to different types, so that Italians (warm and moist) were sanguine, Arabs (warm and dry) were choleric, Russians (cool and dry) were melancholy, and Englishmen (cool and wet) were phlegmatic!

What might surprise you is that this theory, based on so little, has actually had an influence on several modern theorists. Adler, for example, related these types to his four personalities. But, more to the point, Ivan Pavlov, of classical conditioning fame, used the humors to describe his

dogs' personalities.

One of the things Pavlov tried with his dogs was conflicting conditioning -- ringing a bell that signaled food at the same time as another bell that signaled the end of the meal. Some dogs took it well, and maintain their cheerfulness. Some got angry and barked like crazy. Some just laid down and fell asleep. And some whimpered and whined and seemed to have a nervous breakdown. I don't need to tell you which dog is which temperament!

Pavlov believed that he could account for these personality types with two dimensions: On the one hand there is the overall level of arousal (called excitation) that the dogs' brains had available. On the other, there was the ability the dogs' brains had of changing their level of arousal -- i.e. the level of inhibition that their brains had available. Lots of arousal, but good inhibition: sanguine. Lots of arousal, but poor inhibition: choleric. Not much arousal, plus good inhibition: phlegmatic. Not much arousal, plus poor inhibition: melancholy. Arousal would be analogous to warmth, inhibition analogous to moisture! This became the inspiration for Hans Eysenck's theory.

Biography

Hans Eysenck was born in Germany on March 4, 1916. His parents were actors who divorced when he was only two, and so Hans was raised by his grandmother. He left there when he was 18 years old, when the Nazis came to power. As an active Jewish sympathizer, his life was in danger.

In England, he continued his education, and received his Ph.D. in Psychology from the University of London in 1940. During World War II, he served as a psychologist at an emergency hospital, where he did research on the reliability of psychiatric diagnoses. The results led him to a life-long antagonism to main-stream clinical psychology.

After the war, he taught at the University of London, as well as serving as the director of the psychology department of the Institute of Psychiatry, associated with Bethlehem Royal Hospital. He has written 75 books and some 700 articles, making him one of the most prolific writers in psychology. Eysenck retired in 1983 and continued to write until his death on September 4, 1997.

Theory

Eysenck's theory is based primarily on physiology and genetics. Although he is a behaviorist who considers learned habits of great importance, he considers personality differences as growing out of our genetic inheritance. He is, therefore, primarily interested in what is usually called temperament.

Eysenck is also primarily a research psychologist. His methods involve a statistical technique called factor analysis. This technique extracts a number of "dimensions" from large masses of

data. For example, if you give long lists of adjectives to a large number of people for them to rate themselves on, you have prime raw material for factor analysis.

Imagine, for example, a test that included words like "shy," "introverted," "outgoing," "wild," and so on. Obviously, shy people are likely to rate themselves high on the first two words, and low on the second two. Outgoing people are likely to do the reverse. Factor analysis extracts dimensions -- factors -- such as shy-outgoing from the mass of information. The researcher then examines the data and gives the factor a name such as "introversion-extraversion." There are other techniques that will find the "best fit" of the data to various possible dimension, and others still that will find "higher level" dimensions -- factors that organize the factors, like big headings organize little headings.

Eysenck's original research found two main dimensions of temperament: neuroticism and extraversion-introversion. Let's look at each one...

Neuroticism

Neuroticism is the name Eysenck gave to a dimension that ranges from normal, fairly calm and collected people to one's that tend to be quite "nervous." His research showed that these nervous people tended to suffer more frequently from a variety of "nervous disorders" we call neuroses, hence the name of the dimension. But understand that he was not saying that people who score high on the neuroticism scale are necessarily neurotics -- only that they are more susceptible to neurotic problems.

Eysenck was convinced that, since everyone in his data-pool fit somewhere on this dimension of normality-to-neuroticism, this was a true temperament, i.e. that this was a genetically-based, physiologically-supported dimension of personality. He therefore went to the physiological research to find possible explanations.

The most obvious place to look was at the sympathetic nervous system. This is a part of the autonomic nervous system that functions separately from the central nervous system and controls much of our emotional responsiveness to emergency situations. For example, when signals from the brain tell it to do so, the sympathetic nervous systems instructs the liver to release sugar for energy, causes the digestive system to slow down, opens up the pupils, raises the hairs on your body (goosebumps), and tells the adrenal glands to release more adrenalin (epinephrine). The adrenalin in turn alters many of the body's functions and prepares the muscles for action. The traditional way of describing the function of the sympathetic nervous system is to say that it prepares us for "fight or flight."

Eysenck hypothesized that some people have a more responsive sympathetic nervous system than others. Some people remain very calm during emergencies; some people feel considerable

fear or other emotions; and some are terrified by even very minor incidents. He suggested that this latter group had a problem of sympathetic hyperactivity, which made them prime candidates for the various neurotic disorders.

Perhaps the most "archetypal" neurotic symptom is the panic attack. Eysenck explained panic attacks as something like the positive feedback you get when you place a microphone too close to a speaker: The small sounds entering the mike get amplified and come out of the speaker, and go into the mike, get amplified again, and come out of the speaker again, and so on, round and round, until you get the famous squeal that we all loved to produce when we were kids. (Lead guitarists like to do this too to make some of their long, wailing sounds.)

Well, the panic attack follows the same pattern: You are mildly frightened by something -- crossing a bridge, for example. This gets your sympathetic nervous system going. That makes you more nervous, and so more susceptible to stimulation, which gets your system even more in an uproar, which makes you more nervous and more susceptible.... You could say that the neuroticistic person is responding more to his or her own panic than to the original object of fear! As someone who has had panic attacks, I can vouch for Eysenck's description -- although his explanation remains only a hypothesis.

Extraversion-introversion

His second dimension is extraversion-introversion. By this he means something very similar to what Jung meant by the same terms, and something very similar to our common-sense understanding of them: Shy, quiet people "versus" out-going, even loud people. This dimension, too, is found in everyone, but the physiological explanation is a bit more complex.

Eysenck hypothesized that extraversion-introversion is a matter of the balance of "inhibition" and "excitation" in the brain itself. These are ideas that Pavlov came up with to explain some of the differences he found in the reactions of his various dogs to stress. Excitation is the brain waking itself up, getting into an alert, learning state. Inhibition is the brain calming itself down, either in the usual sense of relaxing and going to sleep, or in the sense of protecting itself in the case of overwhelming stimulation.

Someone who is extraverted, he hypothesized, has good, strong inhibition: When confronted by traumatic stimulation -- such as a car crash -- the extravert's brain inhibits itself, which means that it becomes "numb," you might say, to the trauma, and therefore will remember very little of what happened. After the car crash, the extravert might feel as if he had "blanked out" during the event, and may ask others to fill them in on what happened. Because they don't feel the full mental impact of the crash, they may be ready to go back to driving the very next day.

The introvert, on the other hand, has poor or weak inhibition: When trauma, such as the car crash,

hits them, their brains don't protect them fast enough, don't in any way shut down. Instead, they are highly alert and learn well, and so remember everything that happened. They might even report that they saw the whole crash "in slow motion!" They are very unlikely to want to drive anytime soon after the crash, and may even stop driving altogether.

Now, how does this lead to shyness or a love of parties? Well, imagine the extravert and the introvert both getting drunk, taking off their clothes, and dancing buck naked on a restaurant table. The next morning, the extravert will ask you what happened (and where are his clothes). When you tell him, he'll laugh and start making arrangements to have another party. The introvert, on the other hand, will remember every mortifying moment of his humiliation, and may never come out of his room again. (I'm very introverted, and again I can vouch to a lot of this experientially! Perhaps some of you extraverts can tell me if he describes your experiences well, too -- assuming, of course, that you can remember your experiences!)

One of the things that Eysenck discovered was that violent criminals tend to be non-neuroticistic extraverts. This makes common sense, if you think about it: It is hard to imagine somebody who is painfully shy and who remembers their experiences and learns from them holding up a Seven-Eleven! It is even harder to imagine someone given to panic attacks doing so. But please understand that there are many kinds of crime besides the violent kind that introverts and neurotics might engage in!

Neuroticism and extraversion-introversion

Another thing Eysenck looked into was the interaction of the two dimensions and what that might mean in regard to various psychological problems. He found, for example, that people with phobias and obsessive-compulsive disorder tended to be quite introverted, whereas people with conversion disorders (e.g. hysterical paralysis) or dissociative disorders (e.g. amnesia) tended to be more extraverted.

Here's his explanation: Highly neuroticistic people over-respond to fearful stimuli; If they are introverts, they will learn to avoid the situations that cause panic very quickly and very thoroughly, even to the point of becoming panicky at small symbols of those situations -- they will develop phobias. Other introverts will learn (quickly and thoroughly) particular behaviors that hold off their panic -- such as checking things many times over or washing their hands again and again.

Highly neuroticistic extraverts, on the other hand, are good at ignoring and forgetting the things that overwhelm them. They engage in the classic defense mechanisms, such as denial and repression. They can conveniently forget a painful weekend, for example, or even "forget" their ability to feel and use their legs.

Psychoticism

Eysenck came to recognize that, although he was using large populations for his research, there were some populations he was not tapping. He began to take his studies into the mental institutions of England. When these masses of data were factor analyzed, a third significant factor began to emerge, which he labeled psychoticism.

Like neuroticism, high psychoticism does not mean you are psychotic or doomed to become so -- only that you exhibit some qualities commonly found among psychotics, and that you may be more susceptible, given certain environments, to becoming psychotic.

As you might imagine, the kinds of qualities found in high psychoticistic people include a certain recklessness, a disregard for common sense or conventions, and a degree of inappropriate emotional expression. It is the dimension that separates those people who end up institutions from the rest of humanity!

Discussion

Hans Eysenck was an iconoclast -- someone who enjoyed attacking established opinion. He was an early and vigorous critic of the effectiveness of psychotherapy, especially the Freudian variety. He also criticized the scientific nature of much of the academic varieties of psychology. As a hard-core behaviorist, he felt that only the scientific method (as he understood it) could give us an accurate understanding of human beings. As a statistician, he felt that mathematical methods were essential. As a physiologically-oriented psychologist, he felt that physiological explanations were the only valid ones.

Of course, we can argue with him on all these points: Phenomenology and other qualitative methods are also considered scientific by many. Some things are not so easily reduced to numbers, and factor analysis in particular is a technique not all statisticians approve of. And it is certainly debatable that all things must have a physiological explanation -- even B. F. Skinner, the arch-behaviorist, thought more in terms of conditioning -- a psychological process -- than in terms of physiology.

And yet, his descriptions of various types of people, and of how they can be understood physically, ring particularly true. And most parents, teachers, and child psychologists will more than support the idea that kids have built-in differences in their personalities that begin at birth (and even before), and which no amount of re-education will touch. Although I personally am not a behaviorist, dislike statistics, and am more culturally oriented than biologically, I agree with the basics of Eysenck's theory. You, of course, have to make up your own mind!

References

It's hard to pick out just a few of Eysenck's books -- there are so many! "The" text on his theory is probably *The Biological Basis of Personality* (1967), but it is a bit hard. The more "pop" book is *Psychology is about People* (1972). If you are interested in psychoticism, try *Psychoticism as a Dimension of Personality* (1976). And if you want to understand his view of criminality, see *Crime and Personality* (1964). His unusual, but interesting, theory about personality and cancer and heart disease -- he thinks personality is more significant than smoking, for example! -- is summarized in *Psychology Today* (December, 1989).

Your body and your personality

In the 1950's, William Sheldon (b. 1899) became interested in the variety of human bodies. He built upon earlier work done by Ernst Kretschmer in the 1930's. Kretschmer believed that there was a relationship between three different physical types and certain psychological disorders. Specifically, he believed that the short, round pyknic type was more prone to cyclothymic or bipolar disorders, and that the tall thin asthenic type (a too a lesser degree the muscular athletic thype) was more prone to schizophrenia. His research, although involving thousands of institutionalized patients, was suspect because he failed to control for age and the schizophrenics were considerably younger than the bipolar patients, and so more likely to be thinner.

Sheldon developed a precise measurement system that summarized body shapes with three numbers. These numbers referred to how closely you matched three "types:"

Ectomorphs: Slender, often tall, people, with long arms and legs and fine features.

Mesomorphs: Stockier people, with broad shoulders and good musculature.

Endomorphs: Chubby people, tending to "pear-shaped."

Noting that these three "types" have some pretty strong stereotypical personalities associated with them, he decided to test the idea. He came up with another three numbers, this time referring how closely you match three personality "types:"

Cerebrotonics: Nervous types, relatively shy, often intellectual.

Somatotonics: Active types, physically fit and energetic.

Viscerotonics: Sociable types, lovers of food and physical comforts.

He theorized that the connection between the three physical types and the three personality types was embryonic development. In the early stages of our prenatal development, we are composed of three layers or "skins:" the ectoderm or outer layer, which develops into skin and nervous system; the mesoderm or middle layer, which develops into muscle; and the endoderm or inner layer, which develops into the viscera.

Some embryos show stronger development in one layer or another. He suggested that those who

show strong ectoderm development would become ectomorphs, with more skin surface and stronger neural development (including the brain -- hence cerebrotonic!). Those with strong mesoderm development would become mesomorphs, with lots of muscle (or body -- hence somatotonic!). And those with strong endomorph development would become endomorphs, with well developed viscera and a strong attraction to food (hence viscerotonic!) And his measurements backed him up.

Now at several points above, I used "types" with quotes. This is an important point: He sees these two sets of three numbers as dimensions or traits, not as types ("pigeon-holes") at all. In other words, we are all more-or-less ecto-, meso-, AND endomorphs, as well as more-or-less cerebro-, somato-, AND viscerotonic!

Thirty-five Factors

Raymond Cattell (b. 1905) is another prolific theorist-researcher like Eysenck who has made extensive use of the factor-analysis method, although a slightly different version. In his early research, he isolated 16 personality factors, which he composed into a test called, of course, the 16PF!

Later research added seven more factors to the list. Even later research added twelve "pathological" factors found using items from the MMPI (Minnesota Multiphasic Personality Inventory).

A "second order" factor analysis on the total of 35 factors revealed eight "deeper" factors, as follows, in order of strength:

- QI. Exvia (Extraversion)
- QII. Anxiety (Neuroticism)
- QIII. Corteria ("cortical alertness," practical and realistic)
- QIV. Independence (strong loner types)
- QV. Discreetness (socially shrewd types)
- QVI. Subjectivity (distant and out-of-it)
- QVII. Intelligence (IQ!)
- QVIII. Good Upbringing (stable, docile, the salt of the earth)

Baby Twins

Arnold Buss (b. 1924) and Robert Plomin (b. 1948), both working at the University of Colorado at the time, took a different approach: If some aspect of our behavior or personality is supposed to have a genetic, inborn basis, we should find it more clearly in infants than in adults.

So Buss and Plomin decided to study infants. Plus, since identical twins have the same genetic inheritance, we should see them sharing any genetically based aspects of personality. If we compare identical twins with fraternal twins (who are simply brothers or sisters, genetically speaking), we can pick out things that are more likely genetic from things that are more likely due to the learning babies do in their first few months.

Buss and Plomin asked mothers of twin babies to fill out questionnaires about their babies' behavior and personality. Some babies were identical and others fraternal. Using statistical techniques similar to factor analysis, they separated out which descriptions were more likely genetic from which were more likely learned. They found four dimensions of temperament:

Emotionality-impassiveness: How emotional and excitable were the babies? Some were given to emotional outbursts of distress, fear, and anger -- others were not. This was their strongest temperament dimension.

Sociability-detachment: How much did the babies enjoy, or avoid, contact and interaction with people. Some babies are "people people," others are "loners."

Activity-lethargy: How vigorous, how active, how energetic were the babies? Just like adults, some babies are always on the move, fidgety, busy -- and some are not.

Impulsivity-deliberateness: How quickly did the babies "change gears," move from one interest to another? Some people quickly act upon their urges, others are more careful and deliberate.

The last one is the weakest of the four, and in the original research showed up only in boys. That doesn't mean girls can't be impulsive or deliberate -- only that they seemed to learn their style, while boys seem to come one way or the other straight from the womb. But their later research found the dimension in girls as well, just not quite so strongly. It is interesting that impulse problem such as hyperactivity and attention deficit are more common among boys than girls, as if to show that, while girls can be taught to sit still and pay attention, some boys cannot.

The Magic Number

In the last couple of decades, an increasing number of theorists and researchers have come to the conclusion that five is the "magic number" for temperament dimensions. The first version, called The Big Five, was introduced in 1963 by Warren Norman. It was a fresh reworking of an Air Force technical report by E. C. Tuppes and R. E. Christal, who in turn had done a re-evaluation of Cattell's original 16 Personality Factors research.

But it wasn't until R. R. McCrae and P. T. Costa, Jr., presented their version, called The Five Factor Theory, in 1990, that the idea really took hold of the individual differences research community. When they introduced the NEO Personality Inventory, many people felt, and continue to feel, that we'd finally hit the motherload!

Here are the five factors, and some defining adjectives:

1. Extraversion

adventurous
assertive
frank
sociable
talkative

vs. Introversion

quiet
reserved
shy
unsociable

2. Agreeableness

altruistic
gentle
kind
sympathetic
warm

3. Conscientiousness

competent
dutiful
orderly
responsible
thorough

4. Emotional Stability (Norman)

calm
relaxed
stable

vs. Neuroticism (Costa and McCrae)

angry
anxious
depressed

5. Culture (Norman) or Openness to Experience (Costa and McCrae)

cultured
esthetic

imaginative
intellectual
open

The Big Five have also been shown to have a considerable genetic component via twin studies:

The PAD Model

Albert Mehrabian has a three-dimensional temperament model that has been well received. It is based on his three-dimensional model of emotions. He theorizes that you can describe just about any emotion with these three dimensions: pleasure-displeasure (P), arousal-nonarousal (A), and dominance-submissiveness (D).

He reasons that, while we all vary from situation to situation and time to time on these three emotional dimensions, some of us are more likely to respond one way or another -- i.e. we have a temperamental disposition to certain emotional responses. He uses the same PAD initials for the temperaments: Trait Pleasure-Displeasure, Trait Arousability, and Trait Dominance-Submissiveness.

"P" means that, overall, you experience more pleasure than displeasure. It relates positively to extraversion, affiliation, nurturance, empathy, and achievement, and negatively to neuroticism, hostility, and depression.

"A" means that you respond strongly to unusual, complex, or changing situations. It relates to emotionality, neuroticism, sensitivity, introversion, schizophrenia, heart disease, eating disorders, and lots more.

"D" means that you feel in control over your life. It relates positively to extraversion, assertiveness, competitiveness, affiliation, social skills, and nurturance, and negatively to neuroticism, tension, anxiety, introversion, conformity, and depression.

Parallels

Although you may feel a bit overwhelmed with all the various theories, personality theorists in fact are more encouraged than discouraged: It is fascinating to us that all these different theorists, often coming from very different directions, still manage to come up with very parallel sets of temperament dimensions!

First, every theorist puts Extraversion-Introversion and Neuroticism/ Emotional Stability/ Anxiety into their lists. Few personologists have any doubts about these!

Eysenck adds Psychoticism, which some of his followers are re-evaluating as an aggressive, impulsive, sensation-seeking factor. That to some extent matches up with Buss and Plomin's

Impulsivity, and may be the opposite of Big Five's Agreeableness and Conscientiousness.

Buss and Plomin's theory fits best with Sheldon's: Cerebrotonics are Emotional (and not Sociable), Somatotonics are Active (and not Emotional), and Viscerotronics are Sociable (and not Active). In other words, the factors of these two models are "rotated" slightly from each other!

Cattell's factors, other than Exvia and Anxiety, are a little harder to place. Discreteness looks a little like Agreeableness, and Corteria a bit like the opposite of Agreeableness; Good Upbringing looks like Conscientiousness; Independence, perhaps with Intelligence, looks a little bit like Culture. Subjectivity, Corteria, and Independence together might be similar to Eysenck's Psychoticism.

Mehrabian's PAD factors are a little tougher to line up with the others, which makes sense considering the different theoretical roots. But we can see that Arousability is a lot like Neuroticism / Emotionality and that Dominance is a lot like Extraversion / Sociability. Pleasure seems related to Extraversion plus non-Neuroticism.

We can also look at Jung and the Myers-Briggs test: Extraversion and Introversion are obvious. Feeling (vs. Thinking) sounds a bit like Agreeableness. Judging (vs. Perceiving) sounds like Conscientiousness. And Intuiting (vs. Sensing) sounds a little like Openness/Culture. It helps to recall that Jung saw these types and functions as essentially genetic -- i.e. temperaments!

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