



# **Encyclopedia of Human Development**

## **Temperament**

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Temperament is the emotional and regulatory core of personality, incorporating traitlike individual differences in emotional, attentional, and motor reactivity and self-regulation. It is present early in life and has a biological basis, and develops through a person's interaction with the environment. For example, shy children avoid social interactions with unfamiliar others. An initial temperamental predisposition of shyness can lead to differential approach and avoidance of strangers throughout childhood. In addition, people engage in "niche picking" or selecting environments that match their temperament type. Outgoing surgent individuals are more likely to participate in team sports and other community activities. Temperamental characteristics also *evoke* different responses from others in the environment. Individuals prone to irritability are sometimes approached more cautiously by others. Temperament includes both reactivity and self-regulation. As self-regulation develops across childhood, it influences emotional, attentional, and motor expression. Attention systems shift from a more reactive system to a more executive system early in childhood, and individuals have more conscious control over their emotions and activity.

### **Temperament and Personality Distinctions**

Along with experience, temperament influences the development of personality. Personality is a broader concept, including habits, skills, goals, values, needs, the content of individual thought, and the perception of the self in relation to others. By studying individuals across development, there is some evidence that child fearfulness and irritability correspond to the adult personality dimension of neuroticism, whereas child positive approach and activity level correspond to extraversion. Similarly, childhood persistence may be related to adult constraint.

### **Dimensions of Temperament**

The most well-known and widely used theory of temperament was developed by Alexander Thomas and Stella Chess. They defined temperament as the stylistic component of behavior. Based on parental descriptions of infant behavior, they identified nine dimensions of temperament for further investigation.

These nine dimensions are approach/withdrawal, quality of mood, distractibility, persistence, threshold, adaptability, rhythmicity, intensity of reaction, and activity level. From these dimensions they formed three temperamental types: *Easy* children are high in rhythmicity (high regularity in sleep, eating, defecating), high in adaptability (accept change readily), and are not overly active, intense, or moody. The second type is called *slow-to-warm-up*; these children have slower adaptability and higher negative responsivity. Over time, these children do adapt positively to novelty. Lastly, *difficult* children are characterized by irregularity in bodily functions (low rhythmicity), low adaptability, and high negative moodiness.

Children classified under this system as difficult are more likely to experience later behavior problems than easy or slow-to-warm-up children, although the prediction depends on the *goodness of fit* with their environments. Goodness of fit characterizes the match between the child's temperament and the demands of the situation or expectations of others. A good fit predicts healthy development, whereas a poor fit generates stress and leads to problem behaviors and disorders.

More recent empirical examination of the dimensions in this framework has revealed the nine dimensions to be highly intercorrelated and conceptually overlapping. In fact, several studies have revealed that the item pool can be reduced to a smaller number of dimensions, which are outlined in Table 1.

## Measuring Temperament

Temperament is most commonly assessed through parental report, examiner report, or behavioral observation techniques. There are structured (e.g., the Laboratory Temperament Assessment Battery) and unstructured (e.g., observation on the playground) behavioral observation paradigms. Behavior is typically videotaped and scored later for facial, vocal, and/or motoric indicators of temperament. Emotionality and activity are characterized by individual differences in the latency to, peak intensity of, and duration of response, and the extent to which self-regulation modulates the reactivity.

Each method comes with advantages and disadvantages. Parental report, for example, is inexpensive and taps the extensive knowledge of parents who have seen the child in a variety of contexts over a long period of time. However, parents only observe their child's behavior in their own presence, and children may act quite differently when not in the presence of their parents. Parents also may bias their responses because they are worried about making an impression on the researcher. Structured observational assessment, on the other hand, allows the researcher to have precise control over the situation, but is more expensive and constrained in what kinds of behaviors may be elicited and measured.

**Table 1 Dimensions of Temperament**

<i>Dimension</i>	<i>Descriptor</i>	<i>Example item</i>
Fearful Distress	Distress and withdrawal in new situations	"Is afraid of loud noises"
Irritability	Fussiness, frustration	anger, "Gets mad when even mildly criticized"
Positive Emotion/Approach	Smiling and cooperative	laughter, "Smiles and laughs during play"
Persistence	Duration of orienting toward objects of interest	"When drawing or coloring a book, shows strong concentration"
Activity Level	Amount a child moves	"Tends to run, rather than walk, from room to room"

Temperament is hierarchically organized and thus can be assessed on various levels, including the biological. In addition to considering observed behavioral responses to the environment, individual differences in cardiac reactivity, stress hormone responsivity, and activation patterns in the prefrontal cortex of the brain are considered indicators of temperament. Thus, temperament researchers come from a variety of perspectives, from emphasizing the importance of mothers' perceptions of their child's temperament to considering mutual hemispheric regulation of approach versus withdrawal tendencies.

Temperament is an important concept for human development because of its biological basis, relative continuity across development, relations to important influences such as

attachment and parenting, and its predictive power for child and adult adjustment.

### **Genetic and Environmental Influences on Temperament**

Behavioral genetics studies have underscored the important role genetics play in temperament. Heritability is the extent to which genetic variation is important for variation in a population, and twin study approaches have yielded substantial heritability estimates for infant and childhood temperament. Specifically, genetic effects account for approximately half of the variation in Fearful Distress, Irritability, and Activity Level, and both genetic effects and the shared environment account for variation in Positive Emotion/Approach and Persistence in infants. Aspects of the environment that create differences among people are important for all dimensions. Although genetic influences play a role in temperamental differences among people, these influences do not act in isolation.

### **Relations with Attachment Style, Parenting, and Future Adjustment**

Attachment research has established the importance of caregiver sensitivity for infant and child development. Secure attachment indicates that the child can depend on the caregiver and feels safe, leading to increased self-value. The relationship with parents can influence how secure children feel and how they feel about themselves and others, so securely attached children show more positive emotion and less anxiety and have better future relationships with other people. Some studies have found that child temperament predicts behavior during the Strange Situation attachment assessment (a series of parental separations and reunions), but does not predict the attachment classifications of secure or insecure. Mother report of temperamental negative reactivity is modestly associated with attachment security assessing attachment using Q-sort methods (raters sort descriptive statements into categories indicating how typical the descriptions are of the child's behavior). Thus, temperament and attachment are conceptually distinct, yet related to the extent that they both tap children's reactions and coping with stress.

Temperament plays an important role in children's *adjustment*. Fear-prone children are more likely to have anxiety and depression problems at older ages. In one study conducted by Avshalom Caspi and Terrie Moffitt and their colleagues, children who were distress prone, impulsive, and unregulated as 3-year-olds tended to have more problems such as not getting along with others and getting into trouble with the law as adolescents and adults. They also had few people to provide them with social support as adults. Overall, children high on Fearful Distress are at risk for future mood and anxiety disorders, whereas individuals high on Irritability are at risk for future conduct problems. Those high on Activity Level and low on Persistence are at risk for future attention and hyperactive problems.

### **Summary**

Temperament is at the core of personality, and has a strong influence on responding to the surrounding environment. Although it is biologically based and genes account for a significant amount of the variation in temperament among people, the childrearing environment has a strong impact on temperament. The goodness of fit between a child's temperament and their environment influences future positive or negative adjustment.

- temperament
- reactivity
- children
- attachment
- self-regulation
- secure attachment
- heritability

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### **Further Readings and References**

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