



Early Temperament and Psychosocial Development

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Topic

Temperament

Introduction

Temperament, defined as individual differences in constitutionally based reactivity and self-regulation, and observed in children's emotionality, activity and attention, has an ancient history. It has also recently become a rapidly growing research area in child development. Temperament's influence on developmental pathways and outcomes has now been recognized, even in areas that have traditionally been seen as almost exclusively the result of socialization, such as conduct problems, empathy and the development of conscience.¹

Subject

Temperament refers to individual differences in the infant and young child that exist before many of the more cognitive aspects of personality have developed. Temperament includes variability in positive affect and approach, fear, frustration, sadness and discomfort, as well as attentional reactivity and controls on behaviour, thought and emotion.¹ Temperamental dispositions, which are reflected in orientations toward or away from objects, people and events,² are critical to the development of competence and motivation.³

Problems

Research on temperament in childhood is based on multiple methods of questionnaires and observations, with each approach demonstrating both advantages and disadvantages.¹ On the positive side, caregiver-report questionnaires are inexpensive to administer and based on a wide range of behaviours observed by parents or teachers. Laboratory observations allow researchers to control and manipulate the environment and to precisely measure the reaction time, intensity and duration of the children's behaviour, whereas naturalistic home or school observations allow both coder objectivity and ecological validity.¹

There are also problems with each of these methods. Caregiver reports may be biased by the respondent's desire to portray the child in a desirable way. Laboratory observations are likely to be limited in the range and frequency of behaviours that can be elicited, and there are often carry-over effects from one episode to others. Natural observations are

often expensive and time-consuming, requiring multiple visits to elicit a reliable sample of children's behaviour. While no one method is completely error-free, each provides tools to improve our understanding of temperament and its relation to developmental outcomes.¹

Research Context

Research on temperament in childhood has been greatly influenced by the New York Longitudinal Study (NYLS).⁴ Thomas, Chess and colleagues interviewed parents about the behaviours of their two- to six-month-old infants, and through content analysis, identified nine temperament dimensions: activity level, rhythmicity, approach-withdrawal, adaptability, threshold, intensity, mood, distractibility and attention span-persistence. More recently, however, revisions to the Thomas and Chess list have been indicated;¹ these will be listed below under Recent Research Results.

Key Research Questions

1. What are the major dimensions of temperament in infancy and childhood?
2. How does temperament develop?
3. What psychosocial outcomes are associated with temperament?
4. What are the neural, genetic and experiential contributions to temperament?

Recent Research Results

Factor analyses of children's temperament have led to a revised list of temperament dimensions in infancy and early childhood.^{1,5,6} These include 1) positive affectivity; 2) activity level; 3) fearfulness; 4) anger/frustration; 5) attentional orienting; and later, in early childhood, 6) effortful control, i.e. the capacity to inhibit a dominant response in order to perform a subdominant response. During early and middle childhood, three broad factors have consistently been found in parent reports of temperament: Surgency or Extraversion, related to positive affect and activity; Negative Affectivity, related to negative emotions; and Effortful Control, related to attentional, inhibitory and activational control. These factors have been linked to emotional and attentional brain systems in humans and in non-humans.¹

Temperament also develops. During the first few months of life, individual differences in attentional orienting, distress proneness, positive affect and approach, and frustration can be observed. By six months of age, when infants are presented with objects, some infants will also show rapid approach by reaching and contacting them, while others will approach more slowly.⁷ Infant approach tendencies and smiling and laughter in the laboratory predict parent-reported extraversion at seven years.⁸

Late in the first year and beyond, individual differences in fearful inhibition to novel or intense stimuli can be observed.² Fearful inhibition opposes approach tendencies, so that some infants who previously responded rapidly to new objects or people may now approach more slowly, or not approach at all. Fearful inhibition shows considerable stability and is related to the later development of empathy, guilt and shame in childhood.^{2,9} Fearful children tend to develop greater early conscience¹⁰ and benefit from gentle parental discipline in promoting internalized conscience. More fearless children

appear to benefit more from maternal responsiveness and their own security of attachment in conscience development.

Late in the first year of life, effortful control begins to develop, providing additional means of regulating reactive tendencies. We call the brain system underlying effortful control the executive attention system.^{11,12} As executive attention develops, so does the ability to maintain focused attention for longer periods of time. Sustained attention and ability to refrain from touching a prohibited toy in infancy significantly predict effortful control at 22 months.¹³ There is also long-term stability in children's ability to delay gratification, with preschoolers' ability to delay predicting adolescent parent-reported attentiveness, ability to concentrate and control over negative affect.¹⁴ Effortful control is strongly related to children's compliance, and to the development of empathy and guilt or shame in children.

Neuroimaging studies allow researchers to identify tasks that activate brain networks underlying temperament, and these tasks have been adapted to children of different ages to study the development of temperamental systems.¹⁵ These tasks have been used in the study of the development of attentional orienting and effortful control, but it is likely that other dimensions can be similarly measured. Performance on these tasks in the laboratory is positively related to parents' reports about children's ability to control attention and emotion.^{15,16} In adults, performance on these tasks has been linked to the action of specific genes, and considerable evidence supports the heritability of temperament.

Temperament and the development of psychopathology have also been linked.^{1,11} Temperament may heighten responses to stressful events or buffer against risk, and relationships have been found between temperamental fearful inhibition and later anxiety, negative affectivity and depression. Extraversion/surgency and low effortful control have also been linked to the development of behaviour problems.

Conclusions

The list of nine temperament dimensions identified by Thomas and Chess⁴ has been revised to reflect subsequent research: broad basic dimensions include Extraversion/Surgency (positive affect, activity level, impulsivity, risk-taking); Negative Affectivity (fear, anger, sadness, discomfort); and Effortful Control (attention-shifting and focusing, perceptual sensitivity, inhibitory and activational control). Affiliation has also recently been measured.¹⁷ Links have been found between negative affectivity and extraversion and behaviour problems, whereas effortful control is related to adaptation and low behaviour problems. Both fearfulness and effortful control have predicted the development of conscience. Links are also increasingly being made between temperament and genetic and brain processes.

Implications

Research on temperament suggests the importance of educating child-care workers, teachers and parents to realize that children's behaviour and emotions are not the sole result of social learning. Instead, children differ from an early age in their reactivity and self-regulation, and may follow different pathways to developmental outcomes.

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Temperament also suggests specific interventions, such as training in attentional control that has been successfully used with four-year-old children,¹² and can be adapted to preschool settings. Such training has proven useful for children with ADHD as well,¹⁸ and appears to have quite general effects on children's cognitive processing.

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