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The Impact of Temperament on Child Development: Comments on Rothbart, Eisenberg, Kagan, and Schermerhorn and Bates

Rebecca L. Shiner, PhD

Colgate University, USA

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Introduction

The articles on temperament present four lucid reviews of contemporary temperament research, including one review of the field of temperament as a whole (Rothbart), two reviews of particular temperament traits (Kagan on inhibition and Eisenberg on effortful control), and one review of research on the interplay of temperament and parenting in development (Schermerhorn & Bates). These four pieces convey the vibrancy of this burgeoning field of research. Although parents throughout history have undoubtedly recognized that their children show distinctive behavioural patterns from early in life, recent research has probed the nature of these behavioural patterns in greater depth. Specifically, over the last several decades, researchers have documented four especially important findings: 1) temperament consists of individual

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differences in extraversion, negative affectivity, and effortful control and is shaped by both genetic and environmental factors, 2) temperament influences children's experience of the environment, 3) temperament interacts with experiences to shape important life outcomes, and 4) although temperament shows stability, it can change both naturally and through intervention. The following sections review these four major themes and highlight additional research addressing each topic.

Research and Conclusions

The nature of temperament

Temperament researchers have hotly debated the very definition of temperament for decades. In more recent years, however, there is increasing consensus about the basic nature of temperament,[1,2] and those shared views are reflected in the reviews. All the authors agree that temperament involves individual differences in emotional and behavioural processes that emerge early in development and are shaped by biological processes. Three overarching traits that meet this definition are described by Rothbart. Extraversion or Surgency taps children's tendencies toward sociability, positive emotions, and eagerness in approaching potentially pleasurable activities. Negative Affectivity measures children's general tendencies toward a wide range of negative emotions, including both fearfulness and irritability/frustration. The tendency described by Kagan as inhibition is most likely a blend of low extraversion and high negative affectivity, especially fear.[3] Effortful Control reflects children's emerging behavioural constraint and regulation. Another potential temperament trait involves differences in affiliation, empathy, kindness, and nurturance versus antagonism (a trait mentioned briefly by Rothbart); these tendencies show some stability in early childhood and are influenced in part by genetic influences like other temperament traits.[4]

As Rothbart notes, temperament traits emerge in more rudimentary form in infancy, but they expand to include more complex traits over time. For example, Eisenberg describes how children's capacities for self-regulation broaden from more limited skills in deploying attention in infancy to more complex repertoires for behavioural control in the preschool years. Although temperament has a basis in genetic and other biological processes, it is important to recognize that temperament is shaped by experience as well. At birth, infants' temperament traits have already been influenced by prenatal experiences,[5] and experiences continue to shape gene expression after birth.[6,7,8,9] In addition, new genetic influences on temperament traits arise later

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in development.[10] Thus, children's temperamental traits are shaped by a combination of genetic and environmental factors both early in development and across the childhood years.

Temperament influences children's experience of the environment

One of the most profound ways that temperament shapes development is that it causes children to have different experiences of the environment.[1,11] First, children's temperaments shape the responses typically evoked from other people. As Schermerhorn and Bates describe, children who are more extraverted, fearful, and self-controlled tend to evoke more parental warmth, whereas children with higher levels of other negative emotions tend to evoke more negative attempts from parents to exert control. Children's temperaments likewise affect the responses they evoke in other caregivers, teachers and peers.[12] Second, children interpret their environmental experiences differently depending on their temperaments. For example, anxious and irritable children tend to perceive negative events in their lives as more threatening than do children with lower levels of negative emotions.[13]

Temperament interacts with experiences to shape important life outcomes

Although temperament is certainly not destiny, there is good evidence that children's temperament traits make some life outcomes more or less likely to occur. For example, as Kagan notes, more inhibited children have a slightly greater chance than other children of developing social anxiety or depression. In contrast, Eisenberg summarizes research indicating that high effortful control is associated with a number of positive outcomes, such as fewer behaviour problems and stronger social competence. However, in many cases, children's experiences play a part in whether a trait leads to positive or negative outcomes. As Schermerhorn and Bates suggest, parenting may play an especially important role in moderating the outcomes of children's traits. Thomas and Chess introduced the idea of "goodness-of-fit" many years ago in some of the earliest contemporary work on temperament. According to this model, the outcome of a child's temperament will vary, depending on how well the parents can adapt their parenting style to the child's temperament.[14] More recent work has demonstrated several replicable instances of "goodness-of-fit."[1,15,16] For example, children who are aggressive and difficult to manage appear to receive particular benefit from a parenting style involving more restrictive control and lower parental negativity. Shy children appear to benefit from being encouraged by parents to explore novel situations and are more likely to remain shy and inhibited if parents are overprotective. Beyond the family environment, children's school environments, peer

relationships and neighbourhoods can have additional important impacts on whether children's early temperaments remain stable and on whether their temperaments lead to good or poor outcomes.[12]

Although temperament shows stability, it can change naturally and through intervention

There are now good data on the extent to which children's early traits exhibit continuity. After the first few months of life, is there convincing evidence for continuity in children's temperaments? According to a comprehensive synopsis of data addressing this question, children's temperamental traits show only modest stability during infancy and toddlerhood and then show a rather large increase in stability by around age three.[17] Surprisingly, temperament does not appear to become more stable during the elementary-school years and adolescence, but remains moderately stable, comparable to the level of stability seen in the preschool years. In short, preschool-age children's temperamental traits meaningfully predict their later personalities, but there is also good evidence that children do still change across the childhood and adolescent years. New research has also demonstrated that children's traits and the outcomes of those traits can be modified more directly through prevention and intervention efforts. Intervention programs have been designed to modify children's typical patterns of behaviour, including their self-regulation abilities, emotional competence, and coping skills.[18,19,20]

Implications

All of the target pieces note several crucial implications of current temperament research. Children's behavioural differences stem in part from influences beyond social learning; rather, there are important hereditary influences on children's temperaments. Early effortful control and attention confer a variety of benefits for children, and caregivers and teachers should make every effort to help children cultivate these positive traits. In contrast, children's early tendencies toward extraversion versus shyness and toward fearfulness versus fearlessness confer both risks and possible benefits.

A final implication should be emphasized. Some children pose greater challenges to parents, teachers and other caregivers because of their temperaments. In particular, several temperament traits may be particularly challenging for some caregivers: irritability/frustration, fearfulness, high activity level and low effortful control. In such situations, caregivers are likely to benefit from additional support and education; in particular, caregivers can be helped to avoid

negative responses that might be naturally evoked by children's temperaments. For example, parents have been successfully taught how to manage irritable, hard-to-soothe infants so that such children can develop a secure attachment.[21] By providing support and education to caregivers, it may be possible to help children achieve better "goodness-of-fit" in the worlds in which they grow up.

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