

EARLY CHILDHOOD LEARNING

Knowledge Centre

Bulletin

on TEMPERAMENT

May 2009



Temperament Channels Development, But Is Not Destiny

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All parents raising more than one child are in a position to notice, often to their utter surprise, how early and how much children differ in their emotional reactions and self-regulation abilities. These manifest differences are the building blocks of the child's later personality; they appear very early in the child's development and their source is biologically embedded,

resulting from a complex series of interactions involving genetic, prenatal and perinatal factors. Early childhood specialists have started to unravel the nature and determinants of temperament, as well as its role in later development. The pioneering work of Drs. Rothbart, Kagan, Eisenberg, Calkins and Shiner, summarized in this bulletin, highlights four aspects that

underline the relevance of this notion for our understanding of the child's affective and social development. Here are four short lessons on temperament.

First, research shows us that temperament is multi-dimensional. Young children not only differ in the intensity and duration of their initial reactions to the environment, they also differ in their ability to self-regulate and control their motor and attention behaviours. The concept of temperament therefore includes hierarchically organized emotional and cognitive-attention characteristics that foster the child's adaptation to his environment.

Second, temperament is a construct that develops in a differentiated

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manner, and its various dimensions do not develop at the same pace. Approach behaviours, involvement with the environment, as well as reactions of distress and frustration, are observed soon after birth, whereas inhibition and fear of novelty appear towards the end of the first year of life. Effortful control, because it involves areas of the brain that mature later, develops gradually during early childhood. Thus, there seem to be a number of mechanisms that layer themselves to assist the child in accommodating to his emotional states and responding to his environment. In all these aspects, individual differences are obvious.

Third, though temperament may guide development, it does not decide destiny. Temperament tends to act by shaping

personality development rather than determining a particular profile. A rather inhibited toddler is not likely to become an extremely social child, but will not necessarily become an introverted and fearful adult. This particular trait could also keep him from engaging in activities that might be hazardous to his health and safety. Every temperament has its advantages and disadvantages.

Finally, the gradual development of the neurological systems involved in emotion regulation not only allows better emotional and behavioural self-control, it also opens the door to external influences, particularly in the parent-child context. Although genetically influenced, the contribution of temperament to later development can be curbed by the child's socialization

experiences. Furthermore, specific parenting strategies seem to work better for some children than others, based on their temperament. Accordingly, it might be preferable that a parent adapt his behaviour and demands to his child's temperament. This “goodness-of-fit” logic is also valid in child care settings outside the home, and in preventive interventions, where the “one-size-fits-all” model appears, if not completely outdated, certainly insufficient. Many experienced and informed service providers in this field are applying this rule of thumb implicitly. It would be useful to systematize this rule on the basis of our current understanding of temperament. This is probably the most valuable lesson we can learn when it comes to developing future early childhood policies. ☞

Temperament – Nature’s Bias, Nurture’s Challenge

by Lana Crossman

Parents often marvel at how different their children’s temperaments are. One child may be fearful and inhibited; the other extroverted and impulsive. These differences are obvious from an early age and appear even in children who have similar social experiences and upbringings.

Researchers have found that temperamental characteristics, one of the first defining aspects of our personality, are defined from birth time – it has a genetic or biological basis. Temperamental characteristics are associated with developmental outcomes throughout our lifetime, whether it’s our success at school, our relationships with peers and adults, and our risk of depression or anxiety.

The Foundation of Personality

People differ as a function of how well they pay attention to situations, how they approach and react to situations, and in their tendency to feel fear, frustration, sadness and discomfort in everyday life. These individual differences constitute various dimensions of temperamental characteristics. Individual differences in temperamental characteristics are present very early in life, before many of the other aspects of personality have developed.

As very young children, temperamental characteristics are described in terms of biases and are often behind early behaviours such as irritability, activity, frequency of smiling, and reactions to new situations. For example, babies who are fussy and cry often are said to have a “difficult temperament.” These early biases describe how children react to situations, or reactivity, which is the first of the two fundamental components of temperament’s definition.

The influence of temperament in young children extends to their social, emotional and cognitive development. As children get older and are held responsible for their actions, we expect them to regulate themselves, whether it’s their actions or their emotions. Self-regulation is the second fundamental element of temperament’s definition. Children who have difficulty regulating themselves

may become ostracized or criticized by peers and adults. Also, children who have difficulty focusing and maintaining their attention are likely to have more problems with learning. Some temperamental biases, such as being impulsive, inattentive and hyperactive, may put children at increased risk of developing aggressive behaviours, because they can elicit negative responses from others.

Very young infants are considered to be highly reactive, but they learn to control their behaviour as they develop. Self-regulation begins to develop late in the first year of life and continues throughout the early



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years, allowing children to regulate the reactive tendencies they had at birth. It can be observed in a child's ability to pay attention or to stop or start a specific behaviour as needed. As the brain system underlying effortful control develops, so does the ability to maintain focused attention for longer periods of time.

So does this mean that a baby with a "difficult temperament" is destined to become a difficult youth and adult? Fortunately, the answer is no. A temperamental bias is just that – a *bias* that can be mitigated depending on the child's environment and how the environment adjusts to the child.

Investigating Temperament

Researchers have evaluated temperament through parent/caregiver questionnaires and observations of children during play in natural and in lab settings. These methods have advantages and disadvantages in terms of objectivity, scope and reliability, but in combination they provide valuable insight to understanding temperament and how it affects developmental outcomes.

Early research identified nine dimensions of temperament in young children: activity level, rhythmicity, approach-withdrawal, adaptability, threshold,

intensity, mood, distractibility, and attention span-persistence. Recently, some researchers have revised this list and defined three broader dimensions that are consistently noted by parents, including *extraversion* or *surgency* (related to positive affect, activity level, impulsivity and risk-taking), *negative affectivity* (related to fear, anger, sadness and discomfort), and *effortful control* (related to attention shifting and focusing, perceptual sensitivity, and inhibitory and activational control). These dimensions are said to be sufficient to fully describe temperamental individual differences in young children.

Some of the research conducted on temperament in young children has focused on opposite ends of the spectrum of inhibition, which is reactivity toward unfamiliar people or novel objects and situations: one- to two-year olds who are *inhibited* (10-20% of all children) and those who are *uninhibited* (30-40% of all children).

By six months of age, when presented with objects, some infants will quickly reach out for the object, while others will approach more slowly or not at all. Children start to show signs of fearful inhibition to new or intense

stimuli in the first year and beyond. In observations in a lab setting, the infants who approached quickly and who smiled and laughed frequently, tended at age 7 to be more extroverted, according to parent reports.

Temperament: A Predictor of Outcomes

The various temperamental traits can predict developmental outcomes in positive and negative ways. For instance, developing effortful control in the early years leads to advantages later in childhood and beyond. Infants in their first year, who begin to learn to sustain attention and refrain from touching a prohibited toy, are likely to have effortful control at 22 months. Preschoolers who are able to delay gratification are likely, as adolescents, to be attentive, able to concentrate and control over negative affect. Children who develop effortful control tend to be more compliant, and develop empathy, guilt or shame earlier. They tend to have fewer behavioural problems and in older ages are likely to have less negative emotion, a high level of social competence and conscience.

The advantages and disadvantages of other temperament traits are not so clear cut, however. For example, children with a high reactive, inhibited temperament are likely to be more concerned with academic failure (especially if raised in a middle class family) and are more likely to strive for good grades that will lead to postsecondary education. They also tend to avoid risk and so are less likely as youths to engage in reckless driving, drug experimentation and sex at an early age. On the other hand, they are at greater risk to develop anxiety, negative affectivity and depression.

Low-reactive uninhibited children are more likely to be sociable and willing to take career and economic risks that can lead to more challenging positions. However extraverted children with low effortful control have a greater risk of developing behaviour problems and asocial profiles. ↗

Developmental Sequence of Early Temperament and Sources of Individual Differences

by Alison Palkhivala

Temperament is heavily directed by complex genetics influences, but environment plays a crucial role as well, with both biology and environment interacting over the years as each child develops. Even before babies are born, the environment in their mother's womb can influence their brain structure and chemistry, which in turn can have an impact on temperament.

Evidence of children's temperaments can be observed very early in life. Infants' reactions to novel objects at six months of age – reaching for them with enthusiasm or caution; smiling and laughing or gazing with concern – has been shown to predict their level of extraversion at seven years of age (see first article). There is also remarkable variability in temperaments among babies of this age, with some being more or less attentive, welcoming to new things, and prone to distress, cheerfulness, or frustration.

Aspects of Temperament

Babies who display consistent high levels of fearful inhibition (tendency to fear or be cautious around new places, people, or objects) at a young age tend to be more introverted during childhood. However, they develop a conscience of self and others earlier in life and are also more prone to empathy, guilt, and shame.

Another aspect of temperament that emerges late in the first year of life, in response to brain development, is effortful control, one important dimension of self-regulation, or the ability to manage one's own impulses. A child with a high amount of effortful control early in life is typically more

compliant and will likely also develop a sense of empathy, shame, and guilt relatively earlier. Effortful control is also positively linked with academic success.

While children develop effortful control at their own pace and show variations in the levels they achieve, there is a general pattern that most will follow. Children's ability to control what they pay attention to generally emerges between 9 and 18 months of age. By 30 months of age, most have improved their ability to control their attention and their behaviour considerably, with further improvements being notable around 36 to 38 months of age.

Nature vs. Nurture

Overall, temperament appears to be modestly stable during the first three years of life and considerably more stable thereafter. It is important for parents and child care workers to understand, however, that while the basis of temperament may lie largely in genetics, how children's individual temperament will be borne out, whether they will learn to manage their innate impulsivity, for instance, is also dependent on their environment, including how they are parented and disciplined. Thus, early experience plays a significant role in the shaping of temperament.

In fact, the relationship between temperament and the environment is a two-way street. While early experience can influence temperament, temperament has been shown to impact the trajectory of children's lives. For instance, children with an easygoing temperament have been shown to be more resilient to life's challenges. Also, children who are difficult to handle because of, for instance, an impulsive, inattentive, or hyperactive temperament are less likely to obtain support, encouragement, and



Ariseea Dobrinescu

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acceptance from teachers, parents, and peers than those with more socially acceptable temperaments. The result is an increased risk for social isolation and rejection, which in turn increases the likelihood children will display aggressive behaviours or develop affective disorders later in life.

The impact of environment means that adaptations by parents, teachers and child care workers have the potential to help “temper” the negative effects or promote the positive effects of temperamental bias. Research suggests that support and education can help adults to better respond to children who pose greater challenges due to their temperaments. For example, caregivers can be helped to avoid negative responses that might naturally be evoked by children with more difficult temperaments. Parents can learn to adapt their parenting style for children with certain temperaments. Moreover, by showing that individual temperamental biases are identifiable early, research results suggest that intervention should be initiated during early childhood, before the negative outcomes of certain temperamental characteristics appear.

Impact of Caregiving Style

An optimal caregiving style must be flexible enough to adapt to children’s individual temperaments. For instance, children with a high level of fearful inhibition benefit from a style that uses

gentle discipline. More fearless children benefit from warmth and consistency in their everyday schedule. Those with impulsive, inattentive, or hyperactive temperaments can benefit from a positive, non-violent discipline style and direct teaching of more socially acceptable behaviours.

All children benefit from responsive parenting and security of attachment. Caregivers can nurture the development of effortful control in all children by providing warmth and support and avoiding a caregiving style that is overly cold, directive, and controlling. In other words, caregivers need to provide children with the freedom to explore while still maintaining safe and appropriate boundaries, all within a loving environment.

In conclusion, temperament is shaped by both genetic and environmental factors. While everyone inherits a tendency toward a specific temperament, the environment also has an impact, starting in the prenatal period and continuing throughout childhood. Temperament influences children’s life trajectories. Adapting caregiving strategies to individual children’s temperaments can help to capitalize on children’s strength and minimize their weaknesses, giving them the best possible chance in life.

Articles based on:

Rothbart MK. *Early temperament and psychosocial development*. 2005:1-6. <http://www.child-encyclopedia.com/Pages/PDF/RothbartANGxp.pdf>.

Kagan J. *Temperament*. 2005:1-4. <http://www.child-encyclopedia.com/Pages/PDF/KaganANGxp.pdf>.

Eisenberg N. *Temperamental effortful control (self-regulation)*. 2005:1-6. <http://www.child-encyclopedia.com/Pages/PDF/EisenbergANGxp.pdf>.

Shiner RL. *The impact of temperament on child development: comments on Rothbart, Kagan, and Eisenberg*. 2005:1-6. <http://www.child-encyclopedia.com/Pages/PDF/ShinerANGxp.pdf>.

Calkins SD. *Temperament and its impact on child development: Comments on Rothbart, Kagan, and Eisenberg*. 2005:1-6. <http://www.child-encyclopedia.com/documents/CalkinsANGxp.pdf>.

Stifter CA. *Crying behaviour and its impact on psychosocial child development*. 2005:1-7. <http://www.child-encyclopedia.com/documents/StifterANGxp.pdf>.

Luthar SS. *Resilience at an early age and its impact on child psychosocial development*. 2005:1-6. <http://www.child-encyclopedia.com/Pages/PDF/LutharANGxp.pdf>.

Webster-Stratton C. *Aggression in young children: services proven to be effective at reducing aggression*. 2005:1-6. http://www.child-encyclopedia.com/Pages/PDF/Webster-StrattonANGxp_rev.pdf.

Keenan K. *The development and socialization of aggression during the first five years of life*. 2002:1-6. <http://www.child-encyclopedia.com/documents/KeenanANGxp.pdf>.

Bierman KL. *Programs and services proven to be effective in reducing aggression in young children. Comments on Webster-Stratton, Dimitrovich and Greenberg, and Lochman*. 2003:1-6. <http://www.child-encyclopedia.com/documents/BiermanANGxp.pdf>.

Belsky J. *Social-contextual determinants of parenting*. 2005:1-6. <http://www.child-encyclopedia.com/documents/BelskyANGxp-Parenting.pdf>.

In: Tremblay RE, Barr RG, Peters RDeV, eds. *Encyclopedia on Early Childhood Development* [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development. Accessed November 2008.

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Design: Fairmont House Design
Printing: Le groupe Quadriscan

ISSN: 1911-2149
Publication Mail Agreement #: 40069629

The Early Childhood Learning Knowledge Centre (ECLKC), one of five knowledge centres created and funded by the Canadian Council on Learning, publishes the *Bulletin* twice annually. The *Bulletin* is intended for service-providers, service-planners, policy-makers, parents and the general public. Texts may be reproduced with attribution.

The ECLKC is a consortium of organizations led by the Centre of Excellence for Early Childhood Development, which includes the Canadian Child Care Federation, Université Laval, Canadian Language & Literacy Research Network, Human Early Learning Partnership and Groupe de recherche sur l'inadaptation psychosociale chez l'enfant. The mission of the ECLKC is to enhance the knowledge of its target audience in early childhood learning.