

## Growing Up as an Orchid or a Dandelion

### Differential Susceptibility to Environmental Influences

by Julia Luckenbill and Janet Thompson

**T**welve-month-old Lily protests with tears as her father leaves the infant room. All of the other infants seem comfortable with their new caregivers. Her father wonders, why can't she adjust as easily?

Two-year-old Xander screams loudly as another child approaches his sandbox dump truck. "Mine!!!!" His caregiver is worried – she spends more time helping Xander than her other toddlers – is something wrong?

Four-year-old Emily is furious when another child enters her block fort. "No! That's not the way it goes!" she screams. Her forceful reaction draws stares from others in the room.



Five-year-old Clara dissolves into tears, then curls up on the floor after throwing her wadded up drawing across the room. "I just can't make the eyes look right!" she sobs when her dad asks what is wrong. Isn't she overreacting, he wonders?

What do all these children have in common? Is there anything wrong? Is someone to blame?

These and related questions have been an area of focus for the lab school teaching staff's professional development work this spring. As part of our goal of familiarizing ourselves with current research applicable to our work with children and students, we have studied the work of our department's newest child development faculty member, Dr. Jay Belsky, on the phenomenon he calls *differential susceptibility to environmental influences*, a.k.a.: "For Better and For Worse." After we had spent several weeks reading and discussing background articles he and other colleagues had recommended, he joined us on a Friday morning to elaborate on the ideas and discuss other questions they had raised for us.

**T**he intriguing phenomenon Dr. Belsky and his developmental colleagues are investigating has been called--by several researchers and in the popular media--that of "Orchid Children." It is the idea that some children are much more susceptible to all kinds of external influences, especially the quality and style of parenting and other care they receive, than are most children. *Sus-*

*ceptibility* differs from the older idea of *vulnerability*—the belief that some children are especially fragile and easily damaged psychologically by childhood experiences. The development of *susceptible* children can be greatly harmed by adverse early environments and relationships, but greatly helped—even more than other children are--by high quality ones. Just like orchid plants, "orchid children" need more careful tending and watering to thrive because they can easily wilt with poor care, but they also "bloom" more spectacularly if nurtured well.



This recent research has identified biological factors that correlate with differences in a child's susceptibility to context. One is a particular allele (variant) of a gene called the 7-repeat DRD4 polymorphism, which codes for a type of dopamine receptor. Dopamine is a neurotransmitter that is central to the body's reward systems. The presence of this gene variant can have a significant impact on a child's sensitivity to their surroundings and to their interactions with others. Children without this gene variant are less reactive to their environments, and can grow and thrive within a much broader range of childhood circumstances. They are thus labeled "Dandelion Children" -- they are the many children who can blossom almost anywhere, much like the dandelions popping up all over our playgrounds. They seem resilient.

**B**y contrast, "Orchid Children" cannot help responding more intensely to their environments. In one study, these two-year-olds exhibited more tantrums and struggles than their same aged "dandelion" peers. Of significance, however, was that the "orchids" who received sensitive coaching and care from their parents actually learned more from the coaching than did dandelion peers, and later were more capable and socially aware than others. On the other hand, orchids who did not experience high quality interactions were more likely to struggle with relationships, rules and occupations. They are more sensitive, in other words, to the rewards that do or do not derive from their experiences.

What does this mean for us--the parents and caregivers of both orchids and dandelions?

First, all children deserve sensitive, responsive adult care. While very few—orchids *OR* dandelions—truly benefit from the kind of hovering that has become known as “helicopter parenting,” it is important to give a child who needs more support the “extra watering and care” that is needed to thrive. This is the essence of sensitive, responsive caregiving. It may take the form of extra preparation for transitions, on-the-spot social coaching, or modeling of coping strategies for handling frustration and other strong feelings. Each child is different and one of the greatest, but most important challenges of parenting is to adapt to each one’s unique style. Tailored adult support will allow children to develop their own capacities for coping within their own styles.

What might this look like in our lab school classrooms, and what might it entail for you at home? Let’s revisit those initial examples:

-Lily has been paired with a student intern who has extensive experience with infants. As her father leaves, the intern says quietly and calmly, “*You look so sad, Lily. Papa will come back at circle time. I know you like to look at fish while he goes.*” The intern croons Lily’s favorite song about fish as she walks over to the fish tank, following the same soothing routine that Lily experiences every day. Lily stops crying and takes a deep breath, and soon she wiggles down to the floor to play. While she still needs to check in with the student caregiver frequently, the predictability, calmness and responsive caregiving send a message that it is safe to play here in this place away from home.

-Xander’s intense need to possess is typical for toddlers, but Xander’s reaction is stronger than most and requires his caregiver to be on her toes. She spends time “sportscasting” or talking about the activities of other children as well as their perspectives, reassuring Xander that there are other dump trucks for them to use. As she does so, his body relaxes – he trusts her to help him keep this toys. Her talk about perspectives scaffolds his own growing understanding about how others think, and will be a useful tool for his future.

-Emily feels very strongly that her fort should remain exactly as she designed it. She does not yet have the social skills to invite peers in to join her or to negotiate compromises with them. Rather than punishment for her inability to share, she needs close coaching from an adult familiar with how to enter play. Lab school adults use a social problem solving sequence of steps with children that eventually equips them to engage in conflict resolution on their own.

-Clara’s dramatic response to a drawing that does not match the image in her mind’s eye is emotional, rather than rational. She has a strong passion for drawing, and rapidly developing skills, but her drawing skills still do not meet her own expectations. Her dad can help her by acknowledging how frustrating it must be when her drawings are not what she would like. He can provide comfort in the form of soothing words and warm hugs as the initial emotional intensity calms. Once she is ready, they can talk together about how she might approach similar situations when they occur again.

We know that highly reactive children like Lily, Xander, Emily, and Clara will need more adult coaching than others may—both at school and at home. They will need adults to slow down, provide a calm, attentive presence, and repeatedly demonstrate constructive coping strategies when upsets occur. This can be challenging, especially at home. Families can find useful tools to support Emily and her peers on the websites of the *Center on the Social and Emotional Foundations for Early Learning (CSEFEL)* at: [www.vanderbilt.edu/csefel](http://www.vanderbilt.edu/csefel) and of *Zero to Three* at: [www.zerotothree.org](http://www.zerotothree.org).



The research into children’s differential susceptibility to environmental continues. So what are the implications of this research that we can use now? Primarily that since not all children are alike in temperament and sensitivity to their environment, some will require more care and attention to thrive. While these children initially appear less skilled than their peers in coping, regulation and social engagement, with patient and responsive coaching they can grow to be extremely capable and competent adults. As the research evolves, so, too, will our practice.

Reprints of the following reference articles are available in the West House lobby:

Belsky, J., Bakermans-Kranenburg, M.J., & van IJzendoorn, M.H. (2007). For Better *and* For Worse: Differential Susceptibility to Environmental Influences. *Current Directions in Psychological Science*, 16, 300-304.

Dobbs, D. (December 2009). Orchid Children. *The Atlantic*, 50-60.

Ellis, B.J., & Boyce, W.T. (2008). Biological Sensitivity to Context. *Current Directions in Psychological Science*, 17, 183-187.