

# Myth: Children Raised in Similar Ways Have Similar Personalities

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## SUGGESTED LESSON PLAN

Oddly, many people claim to believe this misconception while simultaneously recognizing that they are nothing like their siblings (often followed by a “thank goodness!”). Exploring the claim provides an opportunity to discuss issues involving nature and nurture in developmental and personality psychology. Concepts include the value of using a variety of research methods to address complex issues, the nature of interactions, reciprocal determinism, and deriving advice from research findings.

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### The Myth & Why It is Wrong

We tend, in casual observation, to believe that what we see is the way things are: Children are raised by

their parents; so parents must be the cause of their children's behavior. But there are alternative explanations that we don't see, such as genetic influences. The most direct way to weigh that confound is to randomly assign children to parents, which is unethical. The alternative, as in much developmental research, is to use a variety of other research strategies and to assess the collective body of evidence that they generate. When we apply scientific standards to our observations and rule out alternative explanations, a different view of parents' influence on their children emerges. Research shows that by the time children reach their teens, those raised together are hardly more alike than unrelated individuals. Raising children similarly results in little similarity in behavior (Plomin, 2011).

### **What We Know: Why Right is Right**

Early research on parenting tended to confirm popular monodirectional explanations of parenting and child personality. Correlations between parenting styles and child outcomes suggested that firm but fair and responsive (authoritative) parenting was associated with child competence, and that strict, punishing, and unsympathetic (authoritarian) parenting was associated with child aggressiveness. Years of more sophisticated research revealed the complexities and multifactorial nature of the correlation. Behavioral genetic, experimental, quasi-experimental, training and many other studies contributed to a large body of literature (see Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000). The pros and cons of one method balance the pros and cons of others and point to the same conclusion. Namely, it is not that parents do not make a difference; rather, the effects of parental behavior are different for different children and depend on the child and on bidirectional and interactive effects.

One important way we learn about influences on individuals and attempt to separate nature from nurture is through behavioral genetics research. Although recent techniques in quantitative genetics have resulted in more sophistication, the basic techniques of behavioral genetics research — primarily the comparison of identical versus fraternal twins — have been available for 100 years. Virtually identical correlations between identical twins reared together and those reared apart suggest that shared environment plays little role in individual differences and similarities. In contrast to early parenting research, behavioral genetics studies suggest that genetic contributions play a major role in individual differences and shared environments (e.g., those created by parents for their children) play little role.

The tricky thing about behavioral genetics is that what seems straightforward is actually quite easy to misunderstand. Quantitative genetics produces a number called a heritability coefficient that varies between 0 and 1. It acts as an estimate of the proportion of observable variance in the population that can be attributed to genetic influences, i.e., how strongly differences among individuals relate to differences among genes (Turkheim, 2018). The statistic says nothing about a particular individual and depends on the variability of the characteristic across individuals. Using the example provided by Turkheim, having two arms is obviously genetic, but because most people have two arms, heritability is zero as there is next to no variability in the presence of this trait across individuals. Also, because heritability estimates are never 1.0 (all genetic), even high estimates of heritability suggest a substantial role of environment. For example, heritability estimates for general intelligence are typically about .50. Therefore, 50% of the variance across individuals is estimated as due to environmental processes. Thus, the same data on the role of heredity also reveals the significant role played by the environment. Little of the variance attributable to "environment", however, seems to be attributable to *shared* environment. Nearly all of the environmental influences are those that are not shared among individuals. These influences are complicated, but they may include such factors as peer groups, accidents, disease, and injury.

Another tricky aspect of environments is that the individual is always part of it. In behavioral genetics terms, there are gene-environment correlations—we select, create, and modify environments that are correlated with our genetic predispositions. Aggressive individuals can evoke harsh reactions from others. Bold risk takers choose to spend time seeking challenges. The environment reinforces characteristics of individuals and genes contributing the individual characteristics are therefore partly responsible for the individual's selection of the environment in the first place.

Finally, it is important to note that genes contain information needed to make functional molecules, mostly proteins. Genes do not cause behaviors. Despite presentations of behavioral genetics findings in the popular press, there are no “divorce genes” (Lilienfeld, Lynn, Namy, & Woolf, 2009). What is inherited is often a predisposition to respond to the environment in a way that may make behaviors more or less likely. The Genetic-Fallacy is that genes are destiny. Inherited predispositions do not result in fixed traits that are out of individual control or unchangeable. As Segal (2017) suggests in a quote from Bouchard, “Twin studies refute both biological and environmental determinism. They do not negate the effect of the environment on behavior, nor do they over-glorify the role of genes. They account for the uniqueness of each of us.” (p. 14)

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### **PRIOR to DAY 1: Pose the Question**

At the end of the class prior to addressing the “Similar Personalities Myth”, ask students to reflect on the claim.

- How many believe that children raised in similar ways have similar personalities?
- How many believe you are similar to your siblings?
- Why might all of your responses differ?
- What do you think the research suggests?
- How do you think you would research the topic?

Tell them the readings for the next class will provide some information on what science suggests about children raised similarly. Students should be prepared to discuss what we know about raising children similarly, how we know it, and why we don't know as much as we'd like to

**Readings:** Sections in text related to nature and nurture; behavior genetics; personality; temperament; developmental research. (Several of the Noba chapters are good).

Students could also read a web article or watch a video on Behavior Genetics.

Here are some options:

- [Siblings Share Genes But Rarely Personalities](#) (NPR Article)
- [Robert Plomin on Behavior Genetics at Serious Science](#)

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### **DAY 1: Asking Questions About Nature and Nurture**

The goal for the first session is to get students thinking about how their casual thinking might be flawed and how more systematic thinking might help sort things out. In the process the class will explore how to ask systematic questions about nature and nurture.

Review the claim and questions from the previous day

“Raising children similarly results in similar personality.”

*What do you think this statement means?*

- *Why do you believe it?*
- *What about your siblings?*

*How might we ask the question using an empirical process?*

- *What would a correlational study look like?*
- *Why is it hard to interpret correlational findings?*
- *What are quasi-experimental developmental designs?*
- *What can and can't the longitudinal design tell us about the role of family environment on child outcomes?*
- *How could behavioral genetics studies of family relatedness be used to make systematic comparisons?*

Students should have picked up the basic idea behind behavioral genetic studies from readings (or video if assigned). Be sure to point out variation in genetic similarity (twins, siblings, parents and biological children, unrelated individuals etc.) and the basic types of comparisons (family studies, identical twins and fraternal twins reared together and apart, adoption studies)

Have students work in small groups to identify the comparisons they would want to make to investigate whether genetic or environmental relatedness predicts similarity. Half of the groups could predict what the results would look like if *shared environment* was playing a major role. Half of the groups could predict what the results would look like if *genetic similarity* was playing a major role.

### ***Predictions***

*If trait is genetically influenced*

- *Identical twins ?Fraternal twins*
- *Identical twins raised together = Identical twins raised apart*
- *Adopted child = Biological parent*

*If trait is result of shared environment*

- *Identical twin = Fraternal twin*
- *Adopted Parents = Adopted Children*

After making predictions, have students look at what the data suggest.

Students can search any of several tables for findings from their readings or primary sources. [I've included several tables adapted from various sources as a resource.](#)

Students can create and organize a table in a way that allows them to make their comparisons.

[table id=17 /]

### **Findings**

*Predictions support genetic relatedness*

- *How do we know traits are not entirely genetically determined?*
  - *Identical twins ?1.00*
  - *Identical twins raised together ?Identical twins raised apart*
- *How do we know it is not shared environment?*
  - *Identical twins reared apart are about as similar as identical twins reared together.*

### **Conclusions**

*A large portion of the variability among individuals is due to genetic influences. However, non-shared environmental experiences also contribute significantly to differences.*

*The next thing to consider is what the non-shared environmental influences might be.*

*For the next class: Complete the following readings while attending to these questions: How do genetic and environmental influences contribute to differences in personality? What do these influences say about parenting?*

**Readings:** temperament, personality, parenting, developmental research methods

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### **DAY 2: Exploring Designs That Allow Us to Study Temperament and Personality**

Day 2 could continue addressing the many forms of research used in studying personality and development, including animal models, quasi-experiments, and training studies. The goal of the session could be to tie personality and parenting together with findings on temperament and gene-environment correlations. The point is not that family experiences are inconsequential, but that the experiences that matter are specific to each child in the family.

### **Discussion Question**

Explain the statement: “Temperament grows up into personality.”

Temperament reflects an infant’s basic emotional style and is believed to be largely genetic in origin. Temperament is not personality, but temperament lays some of the biological wiring that makes certain responses to the environment more or less likely — it creates a “push” toward certain personality traits. Individual differences in temperament can predispose individuals to develop certain behaviors (e.g., shyness) by increasing the likelihood that a child will exhibit a reactive response to environmental stimuli. Infants’ temperament can influence the parent’s ability to be responsive and can, therefore, influence attachment style and parenting. Temperament plays a role in influencing niche selection, as when a reactive child chooses to avoid social situations and becomes even more fearful of them. Thus, temperament influences the environment through bidirectional and reciprocal processes that push for persistence of initial temperamental characteristics. However, research has also shown that

predispositions can be changed by the environment.

**Discussion question:**

*One of the more interesting (and controversial) methods of studying personality and temperament involves the use of animal models. Suomi's research, for example, shows the effects of genes and the gene-environment interaction. Suomi (1995) has systematically bred monkeys who are "behaviorally inhibited" or physiologically reactive. These monkeys normally fall low in the monkey hierarchy. However, when assigned a foster mother that is especially attentive and responsive, inhibited monkeys not only learn to regulate their emotions, but their biochemistry also changes and they likely move up in the hierarchy. Even extreme temperaments can be altered by certain environments.*

*Although we cannot use true experiments with human parent-child pairs, we can design quasi-experiments to study reciprocal effects and interactions.*

*Here are two interesting studies:*

*Anderson, Lytton, & Romney (1986) compared conduct disorder and non-conduct disorder children interacting with their own and other mothers. The design and findings allowed researchers to suggest that the child's behavior influenced the mother's behavior more than the other way around. And there were transactional effects. Conduct disorder children behaved worse with their own mothers compared with other mothers. (Although I find this study interesting, you might describe the comparison group to students and see whether they pick up on how this choice for comparison could influence the interpretation).*

*Caspi et al. (2002) investigated how childhood maltreatment might predict antisocial behavior for some, but not all, individuals. The researchers conducted a longitudinal study of maltreatment in individuals with and without a gene that coded the neurotransmitter-metabolizing enzyme, MAOA. A genetic deficiency in MAOA had been shown in mice and humans to be related to aggression. The researchers found that maltreated males with the low-MAOA activity genotype were more likely than non-maltreated males with the genotype to demonstrate antisocial behavior. However, males with high MAOA activity did not show elevated antisocial scores, even when they experienced childhood maltreatment. This study suggests how genes may modify children's sensitivity to the environment.*

*Given what the empirical research says about the shared environmental experiences of parents and children, what should we conclude about parenting? If that advice should be complex, to what extent is that complexity reflected in popular discussions and advice about parenting?*

For the next class, assign readings in the textbook related to parenting. Have students search for popular articles on parenting. Do they reflect the empirical evidence? Why or why not? (e.g., do we not want to "blame" children for outcomes? Do we ignore complex findings?)

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**DAY 3: Parenting and Popular Advice**

**Discussion question:**



*Given what we know about parenting and personality, what parenting advice makes sense? Do parents matter? How?*

In assuming child behavior is monodirectional, much of the popular parenting advice seems at odds with developmental research. Psychological observations of parenting styles find optimal development among children whose parents are authoritative rather than permissive, uninvolved, or authoritarian. Nurturant, responsive parenting is important and secure attachments can provide a scaffold for positive development of reactive children. However, the exclusive personality-shaping power of the parent is one of several misconceptions regarding human development.

Again, it is important to emphasize that empirical research doesn't discount the influence of parental behavior. It holds, rather, that the effects of parenting are child- and context-dependent. Particular behaviors can hurt, in general, and positive behaviors can help. Training studies have found that helping parents learn to regulate their own emotions, and in turn to help their child regulate emotions, can reduce problem behaviors (Collins et al., 2000). Behavior can change behavior. A given parenting technique or style of behavior, however, may not have the same effect on all children.

### **Discussion question:**

*How would you evaluate popular sources of parenting advice?*

Students can share and evaluate the sites they found. They could also evaluate the one below.

**Activity:** There are many sources providing parenting advice and/or products that can and should be carefully critiqued. This activity can be particularly effective if students consider the site as if they are a parent seeking information. I've used the following site.

### [The Total Transformational Program](#)

Although the site "claims" to be based on "cognitive behavioral therapy," it lacks any other content related to scientific psychology. After 2 days of discussing the complexities of parenting and of development, students should at least pick up on the claims to "authority," the use of nothing but anecdote, and the simple and quick-fix nature of the claims—the same words for all children of all temperaments and all ages in all situations. Magic! More generally, students could discuss the marketing issues, including a guarantee. Further exploration might find problematic clickbait. Finally, students could generate suggestions that are evidence based.

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### **Additional misconceptions (If you have additional time)**

**Myth:** Stimulating experiences must be provided during the first three years of life or a critical opportunity for brain development and learning will be lost.

**Reality:** *Experience-expectant* plasticity and sensitive-period constraints apply only to species-wide systems such as vision and hearing. Traits and behaviors that are unique to individuals, to social groups, and to cultures are acquired through a mechanism of *experience-dependent* plasticity. *Experience-dependent* plasticity accounts for most of our learning — inschool, at home, and throughout our daily

lives. This type of plasticity, which we retain throughout our lives, allows us to adapt to most learning situations. There are no sensitive periods for *experience-dependent* plasticity (Bruer, 1997).

**Misinterpretation:** There is a tendency in the popular literature to over-generalize research findings. Along these lines, popular sources have overgeneralized *experience-expectant* plasticity and critical periods, extending them to all types of learning. Although there are some sensitive periods for sensory systems, these vary by system and in timing (from infancy through adolescence), and depend on stimuli that will be present in all normal environments (e.g., visual patterns). Through millions of years of evolution, our neural systems have come to *expect* certain kinds of stimuli in the environment. This environmental input allows systems to fine-tune their performance to fit the environment. The visual system, for example, is set up at birth to expect encounters with certain overall patterns of visual stimulation. Fortunately, the expected stimuli occur in all normal environments. Barring a defect in the individual's sensory systems (e.g., eye) or extreme environmental deprivation (e.g., total darkness), the infant will almost certainly have appropriately fine-tuned systems.

[The First Year's Fallacy: Mozart, Mobiles, and Myths of the Critical Windows](#) (Frontline)

**FYI.** Nutrition is probably the single greatest environmental influence both on fetus and neonate, and plays a necessary role in the maturation and functional development of the central nervous system.

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**Myth:** Mozart's music can increase infant intelligence.

**Reality:** Listening to Mozart's music has the same general, short-term effect on some performance measures as other sources of arousal (e.g., listening to a Steven King novel) and no effect on general intelligence or on infants.

**Misinterpretation:** A temporary arousal effect on one measure of spatial intelligence in college students has been overgeneralized to the lasting IQ effects for infants.

A good review is provided at the [Neuroscience for Kids](#) website

A reading from [eSKEPTIC](#)

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**Paper Assignment:** *Parenthood* (1989)

Students in my Adult Development course love this movie (despite the VHS tape and instamatic camera scenes). Students can watch on their own or at a movie night (the film is too long for class). Assign them to write a brief paper using examples from the movie to illustrate their answer to the question: Why is it that good parents can have problematic kids and problematic parents can have good kids? The point is to get them thinking about the many concepts discussed in this module, including how personality is multi-determined, how children in the same family can turn out differently, etc. [I've included the rubric I use for the Adult Development course.](#) Below is a combination of a variety of student responses



addressing some key issues from the film.

- *Some people feel that one's predisposition determines whether children turn out "good" or "bad." Others feel that it is the type of parenting that influences the child outcomes. Actually, neither of these claims is true. Research on parenting has combined techniques of behavior genetic study, quasi-experimental studies, studies of children at risk, and animal models to develop an understanding of parental and child influences. According to the current body of researching on parenting, child outcomes are not the result of nature, nurture, or nature and nurture but a reciprocal interaction between nature and nurture. This means that child characteristics influence the way parents parent and that the effect of parenting is different for different children.*
- *Genetics accounts for approximately half of the variability between individuals. Biological factors can predispose individuals to be emotional, to be easily stressed (e.g., tense), or to be adaptable and open. But how a child with a particular predisposition actually turns out depends on the child's environment. Learning what your child needs and being able to adapt to the child's needs is critical in parenting the child you have. Your children are never who you expect them to be. But as Suomi and other parenting researchers show, responsive parenting can help even reactive infants learn to regulate emotional. For example, both Gil and his son, Kevin, are predisposed to be easily stressed. Unlike Gil's own father, however, Gil recognized his son's challenges, accepted them, and helped his son learn to deal with his fears the best he could. As a result, Kevin, although still with a tendency to be reactive, is being given an opportunity to learn to regulate his emotion and to develop competencies within a supportive family.*
- *It is also true that resilient children, those with positive predispositions, are able to cope within a range of environments. Children like Cool have temperaments that influence others positively, foster positive attachments, and enable them to build connections despite less than optimal circumstances. So despite having a father who would have failed the licensing exam for parenthood (were there to be one), Cool is a resilient, happy kid.*
- *Although environments matter, parents should not think of themselves as having sole control over their child's characteristics. Also, believing, as Nathan appears to, that experience in the early years is the primary determinant of the child's later abilities, is misinformed. Critical periods may exist early in development for perceptual processes (like vision) but not for cultural experiences (like math). Learning is a life long process involving the development of learning habits and a love of learning over time rather than the result of early exposure to music or math.*
- *Children are born with individual characteristics. Environments can amplify or modify these characteristics. The tasks for parents are to parent the child they have; to provide their child with a caring and supportive environment in which to learn new things; and to provide their child with tools for success by encouraging positive attributions and coping behaviors that enable one to adapt to life's challenges. As Grandma notes, life and parenting are like a rollercoaster ride – sometimes frightening, sometimes thrilling, but never dull.*

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