Hello from the Stony Brook University Temperament Study! We hope this newsletter keeps you up-to-date on the progress of our study of children’s temperament and development. Please let us know what you would like to see in future newsletters. As a reminder, you can find all previous newsletters online at: www.sbutemperamentstudy.org.

Progress Report

We would like to thank you all for your continued participation in the study!! We are excited to share with you that we have successfully completed the Age 6 Assessment Phase of the study, having enrolled 611 families. Additionally, we are pleased to announce that we’ve received funding for the next phase of the study beginning in August 2010. The Project Coordinator, Laura Klein, will be contacting you as your child approaches his/her 9th birthday.

From the Project Coordinator:

I realize that your lives are very busy but we really appreciate the time you’ve taken to be involved in this study. We hope to follow your children from when they were preschoolers to when they reach young adulthood to learn more about the factors that influence who they will become. That’s why your continued participation is so important!

With that being said, I want you to know that we will make every effort to work around your schedules, so that you can come in when it is best for you and interferes the least with your daily lives. We will schedule appointments for you anytime of the day, any day of the week, including weekends and holidays.

And while we’re on the subject of time, I realize that for many, “time is money” and I want to make sure that everyone gets the compensation that they are entitled to. Please be sure to let me know if a check you were expecting was never received. We keep records of everything and can track down almost anything. And please remember, without a signed “human subject participation form” returned to us, no checks can be issued (which is generally why payment has been held up). I look forward to seeing you all again in the near future. Until then, have a wonderful rest of Spring and relaxing Summer!

Moving? New Phone? Questions/Concerns?

We are looking forward to seeing you and your children again for the Age 9 Assessment!

If you have moved or changed your phone number, or have a question for our researchers, please call us at (631) 632-4115. You can also contact us via our email address, psychtemp@notes.cc.sunysb.edu. Even if you have moved out of the New York area, we would still like to have you and your child participate in this phase of the study! Please contact us as soon as possible so we can determine how best to have you take part.
Developmental milestones of Middle Childhood

As your child reaches middle childhood (7-12), many changes take place physically, cognitively and socially. Children in this stage show greater physical strength and increased ability to master and apply skills. They also learn to cultivate peer relationships, deal with peer competition, and develop a healthy sense of self and accomplishment. Here are some of the major developmental changes that appear in eight- and nine-year-old children.

Physical Development
- During this time, physical growth continues. Children develop better body control and become more interested in developing strength, skill, and speed.
- Children’s gross and fine motor skills become more coordinated. Gross motor skills involve the use of large muscles; fine motor skills involve developing dexterity. In addition to the growth in large muscles in their arms and legs, children learn to use their small muscle skills during this period.
- Children develop greater interest in team games.
- For girls, the physical changes of puberty may start. Both boys and girls become more aware of their bodies as puberty approaches.

Cognitive Development
- Children show increased ability to pay attention and retain information. Their ability to describe and express thoughts and feelings increases.
- Individual differences become more marked and children start developing interests or showing more curiosity about specific topics.
- As the amount and depth of school work increase, children start experiencing more academic challenges at school. Children also begin to compare their performance to other children.
- Parents need to be involved and provide appropriate monitoring. Talk to your child’s teacher to find out what your child is learning, what they are struggling with, and what their interests are.
- Help your child develop good homework habits by providing a structure and distraction-free environment. Have your child do their homework at a regular time in a clean, distraction-free area. Review their work afterwards.

Social/emotional Development
- Children become more independent from the family than in early childhood. They are more interested in friends and social activities. They have a greater desire to be liked and accepted by friends. Having healthy friendships becomes increasingly important, especially with friends of the same sex.
- Before age 8, friendship is based on common activities, whereas 8- to 10-year-olds begin to see friendship as based on mutual trust and assistance. Friends are individuals who are psychologically similar and who can be loyal, kind, and sensitive to each other’s feelings and needs. During this period, the number of close friends may decline but the interaction becomes more prosocial and intimate. Through friendships they learn to take another’s perspective, develop communication skills, adapt to other’s needs, and gain emotional support.
• Children experience more peer pressure and may experience excessive concerns about competition and performance, especially in school.
• As they compare their accomplishments with their classmates’ and care more about peer approval, they learn to manage negative emotions that threaten their sense of self-worth. Some children may experience excessive self-criticism (see below).
• Children are less focused on themselves and begin to show more concern for others.
• They become more conscious of fairness. They are more capable of accepting failures and mistakes, and taking responsibility for them.
• Children become increasingly aware of right and wrong and may experience guilt and shame.
✓ You can help your child...
  o express their feelings in appropriate ways when they are worried or upset.
  o see things from another person’s point of view (e.g. another friend) and understand feelings and needs of other people.
  o develop appropriate self-control by providing clear guidance, rules, and limits.
  o develop a sense of responsibility by asking them to help with chores (e.g. setting the table, walking the dog)
  o by encouraging them to solve problems on their own (e.g. disagreement with a friend or siblings) but still be ready to help when asked or needed.
  o by encouraging and supporting your child’s participation in a sports team, after-school programs, Scouts, or other youth groups.

❖ Self-esteem
• This is an important period for developing a healthy sense of self as children begin to compare their appearance and progress in school, and sports performance to their peers. They start worrying more about making friends, succeeding in school, overcoming shortcomings, or combating peer pressure.
• Below are signs of low self-esteem:
  o generalizes instances of failure with statements like “I never get anything right”
  o avoids a task or challenge without even trying, which could be signs of a sense of helplessness or a fear of failure
  o makes excuses (the teacher is dumb) or downplays the importance of events (I don’t really like that game anyway) to blame others or external factors
  o quits soon after beginning a game or a task, giving up at the first sign of frustration
  o cheats or lies when expecting to fail or do poorly
  o makes self-critical comments, such as “I never do anything right” “nobody likes me”, “it’s my fault” or “everyone is smarter than I am”
  o has difficulty accepting either praise or criticism
  o becomes overly concerned or sensitive about other people’s opinions or judgment
✓ You can help your child…
  o learn that it is okay to lose or fail sometimes.
  o learn that making an effort and being persistent matter.
  o by validating and normalizing the feelings of frustration and disappointment your child experiences
recognize what they do well by promoting activities or tasks that your child enjoys and letting him/her set his/her own goals.

- by providing attention, approval and praise for efforts and progress rather than outcomes.

From the Principal Investigator:

I am very excited to share two important pieces of news in this edition of the newsletter. First, we have completed the second of our two assessments at ages 3 and 6. This has been an awesome accomplishment that has required the effort of many dedicated and talented people. Over the past six years, 10 staff members, 10 doctoral students, dozens of undergraduate students, and nine professors and research scientists from Stony Brook and other universities across the country have contributed to the project. Even more important, however, has been the generosity, patience, and effort of the 611 families who enrolled and participated in this project and made it all possible. Please accept our gratitude and thanks.

The second piece of news is that the National Institute of Mental Health (which is part of the National Institutes of Health in Washington, D.C.) has decided to continue funding the project for the next four years in order to allow us to conduct another wave of assessments, when the children are about nine years of age. This will enable us to continue to study the role of temperament in development in middle childhood. We hope that your family will continue to participate and help us make an even greater contribution to understanding how children’s personalities develop and influence later emotional health and well-being.

It takes a tremendous amount of time to clean and analyze all the data that is collected in a study of this magnitude, and we are just in the early stages of the process. However, in the rest of this column, I will briefly summarize some of the findings from our early scientific reports based mainly on the first (age 3) wave of assessments.

One area which we have been examining is how to break down, describe, and measure temperament traits in young children. One of the first papers from this project, published in 2009, examined the distinction between behavioral inhibition, which refers to fearfulness, wariness, and inhibition in the presence of new people and situations, and positive emotionality, which refers to high levels of exuberance, joviality, and engagement. Many temperament experts view these as the opposite ends of the same trait, with highly inhibited children falling at one end of the continuum and highly exuberant children at the other. From this perspective, behavioral inhibition is the same as low levels of positive emotionality. However, we are finding that these are two distinct traits that are elicited by different circumstances. Behaviorally inhibited children are fearful and wary in novel, unfamiliar situations, but exhibit normative levels of joy and enthusiasm in more familiar situations. In contrast, children with low positive emotionality exhibit low levels of exuberance in most situations, regardless of familiarity. Hence, in some contexts, the two traits may be difficult to distinguish, but in other contexts they are clearly different.

Another area we are examining is the relationship between child temperament and emotional and behavioral problems in family members. In a paper that will be published later this year, we report that children whose parents have a history of clinically significant depression are more
likely to exhibit high levels of negative emotionality (a tendency for fearfulness, sadness, and anger) and low levels of positive emotionality than children whose parents have never experienced a significant period of depression.

We have also been very interested in the biological factors associated with temperament and with child development. Two of our recent papers explored the relationship between variants of particular genes and child temperament. In one paper, we examined the association between temperament and the serotonin transporter gene, which regulates the neurotransmitter serotonin which plays a role in mood, appetite, sleep, aggression, impulse control, and other important behaviors. Some previous studies have found a link between this gene and the temperament trait of negative emotionality, but other studies have not been able to replicate these findings. Our study suggests a possible explanation for these inconsistent results. We found that the association between the serotonin transporter gene and negative emotionality depends on the child’s levels of positive emotionality. Children with this particular gene variant are more likely to have higher negative emotionality, but only if they also have lower positive emotionality. It appears that positive emotionality may “protect” or “buffer” children who have a genetic susceptibility to negative emotionality.

We have also been interested in cortisol, often referred to as a “stress hormone” because it is released from the adrenal glands after exposure to stress. Under non-stressful conditions, people produce a great deal of cortisol in the early morning, possibly to help face the demands of the day, and much less as the day goes on. We have been examining factors that influence cortisol in young children. One factor that we have identified, which is consistent with previous findings in adults, is that young children with low positive emotionality produce higher levels of cortisol shortly after awakening. We have also examined some of the genes that are involved in the cortisol response to stress. Two genes that may influence cortisol are the serotonin transporter gene and a gene that regulates brain-derived neurotrophic factor (BDNF), a protein that is involved in the growth and development of nerve cells. We found that different combinations of these two genes were associated with different patterns of cortisol response to stressors in the laboratory (for example, when a stranger entered the room during the age 3 laboratory temperament assessment). For example, one combination of variants of these two genes was associated with an increase in cortisol after the stressor, while another combination was associated with an unexpected decline in cortisol levels. It is likely that many genes contribute to how people respond to stress, and we must examine how they work in concert in order to understand the body’s physiological response to psychological stressors.

A final area that we have been actively exploring concerns the development of neural responses to emotionally-relevant stimuli and their relationship to child temperament. As a first step in this area, we examined the pattern of electrophysiological activity in the brain that occurs after making an error. Adults show a distinctive neural response to errors referred to as the error-related negativity, which is evident even when the individual is not aware of having made the mistake. The error-related negativity reflects activity in the part of the brain known as the anterior cingulate cortex, which is involved in monitoring responses. The error-related negativity has been studied primarily in adults; it is unknown how early it develops. We examined whether it could be observed as early as six years of age. We recorded brain electrical activity using an electroencephalograph (EEG) while children performed a simple task in which they had to push
a button indicating the direction that a series of pictures of triangles pointed in. We found that six-year old children exhibited a neural response to errors that is very similar to, although not quite as strong, as adults.

These are a sample of some of the early findings from the Stony Brook University Temperament Study. It is too soon to try to put them together to make up a coherent, integrated picture. It is also important to bear in mind that these are only a tiny fraction of the many influences on child temperament and development. The size of these effects is too small to be useful in making predictions or decisions about any particular child (that is, they don’t improve our ability to predict the child’s behavior by more than a few percentage points – not enough to be of any practical value and possibly misleading when applied to the individual case). Nonetheless, these findings provide a very promising foundation on which we will continue to build.

Thanks again for your continued help and support over the years,

Daniel N. Klein, Ph.D.
Professor of Psychology, Stony Brook University

Resources for Parents and Children:

Several parents have expressed interest in reading materials and other resources for parents. We would like to recommend some books that address common problems parents and children may encounter. These books are available through Amazon and most major booksellers:

- Good Friends are Hard to Find: Help Your Child Find, Make, and Keep Friends by Fred Frankel
- How to Behave So Your Children Will, Too! by Sal Severe
- The Emotional Problems of Normal Children by Stanley Tureki
- Every Parent: A Positive Approach to Children’s Behavior by Matthew R. Sanders
- The Bully, the Bullied, and the Bystander: From Preschool to High School – How Parents and Teachers can Help Break the Cycle of Violence by Barbara Coloroso

Finally, for problems that may require professional attention, please contact your pediatrician or consider the following resources:

- SUNY Stony Brook, Department of Psychiatry 632-8850
- SUNY Stony Brook Psychological Center 632-7830
- Child & Family Psychological Services 265-9850
- Brookhaven Youth Bureau, Medford 451-8011
- Pederson Krag MHC, Smithtown 920-8300
- Family Service League, Huntington 427-3700
**Transitions:**

Anna Miller, who served as a staff member on the project for two years, started graduate school in Speech Pathology at the University of Maryland, College Park MD, in September. At Maryland, she is also working with Dr. Lea Dougherty, who obtained her doctorate at Stony Brook working on the Temperament Study, and is now an Assistant Professor of Psychology.

Flannery Murphy, who also served as a staff member on the project for two years, started graduate school in Clinical Psychology at the Pacific Graduate School of Psychology/Stanford University in Palo Alto, CA in September.

Suzanne Rose, who has been a staff member on the study since it started in 2004, retired at the end of April. We will miss her and wish her the very best.

Sarah Black joined the project as a new doctoral student in January. Sarah received her bachelor’s degree from Brandeis University in Waltham, MA.

Allison Pennock will be joining the study as a new doctoral student in Psychology in September. Allison received her bachelor’s degree from Emory University in Atlanta, GA.

*We hope you have a wonderful and safe summer! Thanks again!*