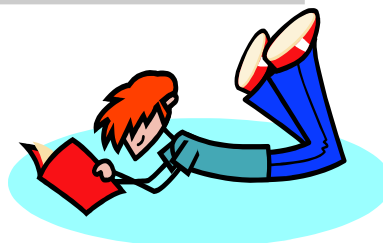


# Early Reading Development News

## *Processes we assessed at preschool stage:*

- **Vocabulary**  
Knowledge of the names of objects.
- **Grammar**  
The rules of language.
- **Print Awareness**  
Familiarity with names and sounds of letters.
- **Verbal Memory**  
The ability to remember stories, strings of words, and pattern recall.
- **Phonological Awareness**  
Recognition of rhyme, alliteration, and the ability to break speech into segments.
- **Rapid Naming**  
The speed of speech.

## Genetic & Environmental Influences on Reading Ability



We have now published several technical reports of the study. The most recent is entitled *Genetic and Environmental Influences on Early Literacy*, published in 2006 in the *Journal of Research in Reading*, Vol. 29, pp.33-49. The following is an edited version of the abstract from that article.

Prereading and early reading skills of preschool twin children in Australia, Scandinavia, and the United States were explored in a genetically sensitive design (627 preschool pairs and 422 kindergarten pairs). Analyses indicated a strong genetic influence

on preschool phonological awareness, rapid naming, and verbal memory. Print awareness, vocabulary and grammar were subject primarily to shared environment effects.

There were significant genetic and shared environment correlations among the preschool traits. Kindergarten reading, phonological awareness and rapid naming were primarily affected by genes, and spelling was equally effected by genes and shared environment. Analysis revealed genetic and environmental overlap and

independence among kindergarten variables.

Longitudinal analysis showed genetic continuity as well as change in phonological awareness and rapid naming across the 2 years. Relations among the preschool variables of print awareness, phonological awareness and rapid naming and kindergarten reading were also explored in longitudinal analysis. Educational implications of these findings are discussed.

*If you would like a copy of this complete article, please email us at the address on the back and we will send you a pdf version.*

## “Reading to Learn”: A Fourth Grade Testing Update

The initial testing of our twins that have finished 4th grade went well. We were very happy to see the twins again after the break in testing at 3rd grade. Since further development of reading skills occurs after grade 2 in word-reading fluency, knowledge of the irregu-

larities of English orthography, and most important, reading comprehension, the 4th grade testing procedures included an increased emphasis on the twins' reading and listening comprehension. During the preschool, kindergarten, 1st and 2nd grade years of the

study we are looking at how children “learn to read”. With the addition of the 4th grade test session, the focus of the research is now more on how children “read to learn”. Of course children do learn from reading before grade 4, but the primary emphasis in

beginning reading education and assessment is in the development of basic skills in the recognition and spelling of familiar words. It is too soon to include any feedback from the 4th grade testing because we have only seen a small number of families, but this should be coming soon.

Kim Corley - RDS  
Campus Box 447  
Boulder, CO 80309

Phone: 303-492-3705  
Fax: 303-492-8063  
E-mail: [corleyk@colorado.edu](mailto:corleyk@colorado.edu)



Longitudinal Study of  
Early Reading Development



## Thank You Again!

We would like to thank you again for your continued commitment to the reading study. During the summer testing of 2006 we were, once again, able to test all but two of our in-state families. Unfortunately, due to funding cuts we were unable to travel to test our out-of-state families. We're hopeful that we will be able to resume testing out of state during the summer of 2007. We have now finished testing all of our twins that have completed preschool and kindergarten.

### A Reminder:

We wanted to remind all 3rd/4th grade parents that we are very interested in looking at your twins' CSAP scores to see if there is a relationship between scores on our measures of reading skills and the twins' scores on state assessments. If you haven't sent in those scores we would still love to have them!

## Results in the School Years

In the first school year, Kindergarten, we see reasonably substantial effects of genes and



more modest effects of shared environment on how quickly and accurately children can read lists of words, on verbal fluency, and on phonological awareness. Spelling is about equally influenced by genes and the shared environment. As with the preschool data, we see substantial effects of the family/school environment on grammar.

In years 1 and 2 we continue to see the effect of genetic background on reading, including reading passages for understanding as well as reading lists of words. The home/school environment appears to play a smaller

role in determining literacy differences among children as schooling progresses, although we need to conduct further statistical modeling to estimate those effects precisely. Vocabulary continues to show the imprint of the home/school environment on top of roughly equal genetic influence. It also seems that new genetic influence on word reading comes "on stream" as children develop, although where the kindergarten curriculum is more challenging, as it appears to be in Australia compared with our sample in the USA, those genes already show their hand at kindergarten.