In most children, normal language development depends on opportunity, good hearing and the absence of underlying neurological problems. Unfortunately, even under these conditions, about 7% of children entering school will show signs of specific language impairment (SLI), a deficit that prevents them from developing language normally.

Many SLI children will have trouble learning to read and may be diagnosed with dyslexia. They tend to perform poorly on language and reading tests and may have trouble processing rapidly changing sensory information within a short period of time.

The deficit tends to cluster in families. Recent studies with twins indicate that SLI children may have some unique genetic components that influence their language acquisition. There have also been some interesting associations between SLI and environmental factors, such as toxemia in pregnancy and hypertension.

Recently, a group of researchers studied the DNA samples drawn from five Canadian families of Celtic heritage. The families, which had originally been identified for a linkage study of schizophrenia, also showed a history of language or reading problems. The researchers used three different SLI classifications to identify families with at least two members suffering from SLI.

The researchers then carried out several different analyses of the genes. They found a significant link between chromosome 13 and susceptibility to SLI, as well as evidence that two other areas, one on chromosome 2 and the other on chromosome 17, play a role in the development of the deficit. They also found an interesting link between the area on chromosome 13 – 13q21 – and autism, but noted that SLI and autism appear to involve many different genes, so a common gene would not be completely responsible for both.

Deborah Lake, a psychologist at the Kinsmen Children’s Centre in Saskatoon, notes: “There is a sampling issue here. They drew this data from a group that had been linked to schizophrenia. The sample was also quite homogeneous. They need to do this same thing with a new, more heterogeneous sample. They need replication.”

“Studies into the genetic component of language difficulties such as SLI, may one day help practitioners improve both their diagnoses and interventions,” says Lake. “Genetics has become extraordinarily complex and interesting. It will help us understand how inherited traits and environment interact. Determining genetic markers for specific disorders will certainly improve diagnoses,” she says. However, Lake points out that people may be clinically diagnosed with a disorder, for example Rett syndrome, without showing the genetic marker.

“When it comes to language problems such as SLI, more research is needed in the area of effective interventions. We need to know if interventions should occur at a specific time and if specific interventions have more impact than others,” Lake adds.