

Language stability in primary school-aged children hinders catch up for those with language disorders

In 2017, the Journal of Clinical Psychology and Psychiatry published the latest results of the Surrey Communication and Language in Education Study (SCALES), in which Courtenay Frazier Norbury and colleagues investigated language growth and stability in a population cohort of children with varying degrees of verbal and nonverbal cognitive abilities and a wide range of additional diagnoses. Here, the researchers summarise their key findings and indicate where additional studies are needed in this field.

Language impairment in school-age children is a risk factor for long-term academic under-achievement, cognitive deficits and/or social, emotional and behavioural problems. Epidemiological studies estimate that a notable minority of children start school with a clinically significant language disorder, but the true extent and impact of language deficits and the potential for recovery is unclear. SCALES was thus established as the first UK population study of language development and disorders at school entry aiming to address some of these issues, thanks to funding by Wellcome and the involvement of >180 schools across Surrey.

In their latest iteration of SCALES, Norbury and colleagues were interested in the effects of co-morbidities on language growth, and the additional problems that children may experience if they have language deficits. “Most of our previous research has relied on clinically referred samples; such samples are likely to be biased as children with more pervasive or severe deficits are more likely to attract clinical attention”, explains Norbury. “By using the SCALES population sample in which such bias is reduced, we could ask if a child starts school with language deficits, what other developmental concerns are present at that time, and how the pattern of co-occurring deficits changes over time”.

In 2011, all mainstream primary schools in Surrey were invited to take part in SCALES. Participating teachers (n = 280) completed an online questionnaire about the behaviour, language and communication skills and academic progress of each child (n = 7,267) in their reception class. From this population, Norbury *et al.*, analyzed in depth the language, cognitive, and behavioural skills of a subset of 529 monolingual children in Year 1 (aged 5-6 years old) and 499 of the same children in Year 3 (aged 7-8 years old). Specifically, various components of language were assessed, using six individual tests covering vocabulary, grammar, sentence imitation, and comprehension. Nonverbal IQ was measured using subtests from the *Wechsler Preschool and Primary Scales of Intelligence* (in Year 1) and the *Wechsler Intelligence Scales for Children* (in Year 3). Finally, a clinical diagnosis based on social, emotional and behavioural symptoms was made according to results of a checklist of possible diagnoses completed by teachers, parents and/or special educational needs co-ordinators and a questionnaire rating social, emotional and behavioural development.

Norbury and colleagues then classified the participating children into three groups: group 1 included those with typical language skills, group 2 included those with a developmental language disorder with no known cause for the language problems, and group 3 included those with language disorders associated with other clinical conditions (such as autism spectrum condition or Down syndrome). Their previous SCALES analysis reported that 9.92% children start school with a language disorder, of which 7.58% fall into group 2 and 2.34% fall into group 3. When analyzing these three groups in their latest study, the researchers found that the rate of language growth is similar between children of all groups,

regardless of initial language status. Importantly, the rate of language growth was not associated with child non-verbal cognitive ability, socio-economic status, or child social, emotional, behavioural deficits.

“Using our measures of language, cognitive, and behavioural skills, we found that language is incredibly stable: although children improve in language competence over time, their relative position within a distribution stays largely the same”, describes Norbury. “This paradigm means that we can identify children with language problems in Year 1 and be fairly sure they will be continuing to have language difficulties in Year 3”.

These findings are some-what a double-edged sword, as Norbury explains; although the linguistic progress of children with a language disorder is impressive, the equivalent language growth rate between the three groups means that those with a language disorder are about 2 years behind in language skills compared to their peers over this 3-year period. “It seems that narrowing this gap between the most and least able is difficult”, claims Norbury.

The researchers go on to explain that it is very possible that children with multiple developmental concerns show a plateau in language growth at an earlier age than their peers, and so a follow-up of these children is required over a longer period. With this concept in mind, the researchers are re-assessing the SCALES cohort now that the participating children are in Year 6 and into Year 8, to capture the important transition to adolescence.

These latest findings have opened a new avenue of questions that now need to be explored. “If children with multiple developmental concerns do show a plateau in language growth at an earlier age than peers, why is this? Does this plateau represent a biological limit on learning or does it reflect changes in language input?” poses Norbury. “These affected children are more likely to be referred to specialist education settings, are very unlikely to be reading, and have increased peer problems, which changes the nature of the language input they are receiving. It could also be that, as they reach adolescence, the nature of the language they need to learn is changing and exceeds their linguistic capacity, with a greater need to use and understand abstract language, learn from written texts, and use more complex grammatical constructions”.

The researchers are now keen to understand if it is possible to change a developmental language trajectory, or to enable children to make greater than expected progress in their linguistic skills. Future studies are thus required that will firstly identify if there is a critical developmental period in which changing the language trajectory is more likely to happen and secondly, determine what type of intervention (and its intensity) is required to achieve this aim, or at least narrow the gap with more verbally able peers.

With regards to language interventions, many researchers have been looking for short-term therapies that can ‘cure’ language disorders, with a particular focus on early intervention. “Of course early intervention is important, but our data on language stability suggests that many children will have on-going language-based needs”, says Norbury. “We need to ensure that our clinical services can provide support to children with language disorders when they are most vulnerable, for example in the transition to secondary school, or when they leave school and employment and social relationships become particularly challenging”.

In the coming years, the researchers hope that there will be greater recognition of developmental language disorders and the impact of poor language on children’s

development and mental well-being. Currently, many children referred to child and adolescent mental health services have undiagnosed language disorders. As such, the challenge remains to better understand how supporting language development may mitigate against risk of mental illness. Finally, the researchers hope that future studies will explore how standard psychological therapies (such as cognitive behavioural therapy) could be adapted for individuals with a language disorder, who may otherwise not be able to access talking therapies.

In summary, the latest data derived from SCALES show that all children make considerable progress in language development during their first three years of school, regardless of co-morbidities or severe developmental challenges. However, because the rate of language growth does not change during this period, those who start Year 1 with strong language skills tend to maintain this 'edge' at Year 3 and those with a 2-3 year delay from Year 1, maintain this delay during the early school years.

“There is a general view that children with deficits in non-verbal cognition or those from socially disadvantaged backgrounds will not make as much progress with language as their peers with different cognitive and social profiles”, says Norbury. “Our findings from the early years of primary school challenge these assumptions and indicate that the rate of language growth is similar between all children”.

Referring to

Norbury, C.F., Vamvakas, G., Gooch, D., Baird, G., Charman, T., Simonoff, E. & Pickles, A. (2017), *Language growth in children with heterogeneous language disorders: a population study*. *J Child Psychol Psychiatr*, 58: 1092-1105. [doi:10.1111/jcpp.12793](https://doi.org/10.1111/jcpp.12793)

Further reading

Norbury, C.F., Gooch, D., Way, C., Baird, G., Charman, T., Simonoff, E., Vamvakas, G. & Pickles, A. (2016), *The impact of nonverbal ability on prevalence and clinical presentation of language disorder: evidence from a population study*. *J Child Psychol Psychiatr*, 57: 1247-1257. [doi:10.1111/jcpp.12573](https://doi.org/10.1111/jcpp.12573)

See also

<http://www.lilac-lab.org/scales/>

Glossary

Cognitive Behavioural Therapy (CBT): a form of talking therapy that encourages patients to manage their psycho-social problems by changing the way they think and behave; CBT focuses on current problems and finds practical ways to improve state-of-mind on a day-by-day basis

Co-morbidity: the presence of one or more additional disorder that co-occurs with a primary disorder

Epidemiological study: an analysis of how often a disorder occurs in a particular population and the reasons why it occurs

Language stability: the concept that individual differences in language skill (typically at school age) are stable over time

Talking therapy: a method of treating a psychological disorder or emotional problem that relies upon talking to a trained therapist, either 1-to-1 or in a support group