

## The understanding of complex syntax in children from 5 - 9 years, using a novel assessment approach - the Test of Complex Syntax- Electronic (TECS-E)

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### Abstract

**Background:** Despite the importance of complex sentences, no comprehensive assessment of complex syntax has existed in the English-speaking world. The TECS-E proposes a novel way to assess language by using engaging animations shown on a tablet; is designed to reflect the way sentences are processed in everyday conversation; and can be reliably completed independently from 5 years.

**Aim:** This study aims to ascertain how well English speaking children (5-9 years) understand complex sentences, (specifically relative clauses, adverbial clauses and complement clauses); how type of construction, age, sex, and socio-economic status impact children's performance; and the reliability/validity of the TECS-E assessment tool.

**Method:** The TECS-E was administered to over 900 English-speaking children, aged between 5;00 and 8;11 years, across the Republic of Ireland. The sample was further refined to 600 (i.e. 100 participants per age-band) to ensure an accurate representation of the Irish population with respect to sex, socio-economic status, and locale (rural versus urban areas). The validity and reliability of TECS-E was also estimated using test-retest, concurrent validity and internal consistency measures.

**Results:** Children performed significantly differently on each family of constructions, (i.e. highest on relatives, followed by complements and lastly adverbial clauses) with an upward trajectory from 5 to 9 years on all clause types. Children from socially disadvantaged backgrounds scored significantly lower than those from more affluent backgrounds and females performed significantly higher than males (particularly marked in those who are socially disadvantaged). Differences associated with sex or background were no longer evident from 7 years. Results indicate high levels of internal ( $\alpha = .924$ ) and external reliability ( $r = .88$  across all bins) and a test-retest mean difference of agreement of -1.7 (Bland -Altman).

**Conclusion:** This study contributes to our knowledge of typically developing children's understanding of complex sentences from 5 - 9 years. The TECS-E is a computerized assessment tool that 1) can be reliably completed independently by children from 5 years; 2) has been norm referenced and standardised on a large and representative Irish population and 3) can be used to identify children's strengths and weaknesses in understanding a range of complex sentences.