

## A number of **Master's theses** are available in the Department of Developmental Psychology for the academic year 24/25 (start is possible immediately):

If you would like to find out more or are considering one of the topics for your Master's thesis, please arrange an appointment with Prof. Landerl ([karin.landerl@uni-graz.at](mailto:karin.landerl@uni-graz.at)). Other topics in the context of the acquisition of reading performance and mathematical cognition are also possible.

### (1) Tolerance for incorrect pronunciation and reading in German and English:



How well can children and adults deduce the correct word from incorrect pronunciations? If “wasp” is pronounced as “wäsp” – is the intended word still recognized correctly? A number of interesting English-language studies show that this ability is related to reading. There are no research findings to date for people with German as their first language.

Specific questions that can be investigated:

- Does the correlation of tolerance for mispronunciation also apply to people learning English as a foreign language?
- What is the relationship between this competence and reading and spelling in German?
- Do children and adults who grow up multilingual have a higher or lower tolerance for mispronunciation?
- Do children and adults who speak a dialect have a higher or lower tolerance for mispronunciation?
- What should a task to assess tolerance for mispronunciation in the German language look like?

Here are some recent studies on this topic:

Edwards, A. A., Steacy, L. M., Siegelman, N., Rigobon, V. M., Kearns, D. M., Rueckl, J. G., & Compton, D. L. (2022). Unpacking the unique relationship between set for variability and word reading development: Examining word- and child-level predictors of performance. *Journal of Educational Psychology*, 114(6), 1242–1256. <https://doi.org/10.1037/edu0000696>

Steacy, L. M., Wade-Woolley, L., Rueckl, J. G., Pugh, K. R., Elliott, J. D., & Compton, D. L. (2019). The Role of Set for Variability in Irregular Word Reading: Word and Child Predictors in Typically Developing Readers and Students At-Risk for Reading Disabilities. *Scientific Studies of Reading*, 23(6), 523–532. <https://doi.org/10.1080/10888438.2019.1620749>

Landerl, K., Thaler, V., & Reitsma, P. (2008). Spelling pronunciations: Transforming irregularity into regularity. *Learning and Instruction*, 18(3), 295–308. <https://doi.org/10.1016/j.learninstruc.2007.10.001>

Tunmer, W. E., & Chapman, J. W. (2012). Does Set for Variability Mediate the Influence of Vocabulary Knowledge on the Development of Word Recognition Skills? *Scientific Studies of Reading*, 16(2), 122–140. <https://doi.org/10.1080/10888438.2010.542527>

## (2) How do executive functions develop?

Executive Functions, i.e. planning and control functions (e.g. inhibition, switching, updating) play an important role in cognitive development and school performance. However, measuring executive functions is often difficult, especially in young children. Child-friendly tasks that are reported in existing studies should be examined for their applicability in different age groups.

Examples for EF-Assessments:



Early Years Toolbox:

<http://www.eytoolbox.com.au/about>

Howard, S.J., & Melhuish, E. (2017). An early years toolbox for assessing early executive function, language, selfregulation, and social development: validity, reliability, and preliminary norms. *Journal of Psychoeducational Assessment*, 35(3), 255–275. <https://doi.org/10.1177/0734282916633009>.

Llorente AM, Williams J, Satz P, D'Elia LF, (eds.) (2003). Children's Color Trails Test – Professional Manual. Lutz: Psychological Assessment Resources. [CCT™ - Children's Color Trails Test™ | Hogrefe](#)



Specific questions that can be investigated:

- How do executive functions develop in primary school age (1st – 4th grade)?
- What contribution do executive functions make to the high overlap between reading and computing performance?
- Do children who grow up multilingual have better executive functions?

## (2) Twenty-four vs. Vierundzwanzig: How do we process multi-digit numbers?

We were recently able to use an experimental number-matching paradigm to show that German-speaking children and even adults experience language-specific challenges when processing numbers: They had particular difficulty recognizing Arabic numbers as incorrect that contained a “digit fall” (e.g. “twenty-four” – 42). This number matching task can also be used for other questions, e.g.:



- Does the decade-unit inversion of the German language also affect three-digit numbers? (e.g. “Three hundred and twenty-

four: 342 or 324)?

- How are five-digit numbers that contain two inversions processed? (e.g. "seventy-five thousand one hundred and twenty-four": 57124 - 75124 - 75142 - 57142")
- How are numbers with a syntactic 0 processed by children and adults? (e.g. "three thousand five": 3005 - 3500 - 30005 - 3050)

Literature:

Steiner, A.F., Banfi, C., Finke, S., Kemény, F., Clayton, F.J., Göbel, S.M., & Landerl, K. (2021). Twenty-four or four-and-twenty: Language modulates cross-modal matching for multidigit numbers in children and adults. *Journal of Experimental Child Psychology*, 202, e104970. <https://doi.org/10.1016/j.jecp.2020.104970>