

## **The PolkaNorski project: challenges of 5 intertwined studies on monolingual and bilingual children from 0 to 6 yrs**

The PolkaNorski project consists of five studies with common and intertwined goals that address early language development comprehensively. The diversity between the studies involves challenges at three different levels: (1) theoretical, (2) methodological and (3) implementational. In this presentation, we aim to identify and describe these three groups of challenges and briefly introduce potential solutions we may implement to handle them. Our five studies focus on: (1) examine the relationship between parent's knowledge about early multilingual acquisition and multilingual language development in children, (2) investigating mono- and bilingual language development through the use of parental questionnaires (MacArthur-Bates Communicative Development Inventories (CDIs) (Fenson, 2007) and Parents of Bilingual Children Questionnaire (PABIQ) (Tuller, 2015) and a vocabulary test developed for tablets (Cross-Linguistic Lexical Tasks, Haman et al., 2021, Simonsen et al., 2012), (3) longitudinally explore brain responses during semantic processing in mono- and bilingual toddlers, and (4) enquiring into children's understanding of and reasoning about living things.

At a theoretical level, the PolkaNorski project focuses on tracking children's developmental trajectories of language acquisition, but also considers the impact of internal and environmental factors to the acquisition process. Integrating the individual level, the role of language input and the role of caregivers in accounting for language development in a common framework is a challenge in itself.

At a methodological level, one challenge is that our studies contain heterogeneous instruments: in person and online assessment with the use of apps, parental reports (CDI; Smoczyńska et al., 2015b; Simonsen et al., 2014) and experimental methods (electroencephalography and eye tracking). Successful collection, integration and interpretation of the measures derived from these diverse instruments requires continuous multidisciplinary dialogue and coordination between researchers of our studies.

Finally, we combine both longitudinal and cross-sectional designs, which involve future statistical challenges (e.g., dealing with missing values, unbalanced cases and applying complex statistical approaches like multilevel models).

At the level of implementation, one challenge is to recruit and test in two different locations (Poland and Norway). While access to a very specific bilingual (and bicultural) population living in Norway gives us the opportunity to study a very unique sample, aligning the timing of recruitment and testing our three groups (monolingual Norwegian, monolingual Polish and Polish-Norwegian bilinguals) requires coordination efforts. This challenge goes from deciding which recruitment strategy is more optimal in the different countries, to homogenizing stimuli, instruments and procedures that allow us to replicate our methods across countries. Another implementation challenge is to coordinate the various questionnaires and tests to make a meaningful flow of procedures within each study and to organize the data in a way that they can be used for all the studies where they are attended. Related to this, is the challenge of establishing a system of data processing that is ethically sound and complies to GDPR.

All in all, the complexity of the challenges we face mirrors the complexity of comprehensively studying language development in children raised bilingual, which entails exploring different agents, levels of analyses, with diverse methods and in different contexts.

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