

## The languages of education in multilingual India: exploring effects on reading and mathematics

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Session summary:

### What is academic language (cognitive academic language proficiency) and how can it be furthered in schools in India?

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We discussed the distinction introduced by Cummins (1979) between Basic Interpersonal Communicative Skills (BICS) and Cognitive Academic Language Proficiency (CALP). This distinction was developed to describe the language skills of immigrant children in North America, but most people in the audience felt this was applicable to multilingual children in India too, as they often learn through the medium of languages that are not their home languages.

We then evaluated to what extent a more recent model of Hulstijn (2015) could be seen as an extension of Cummins' ideas. Hulstijn introduced the notions of Basic Language Cognition (BLC) and Higher Language Cognition (HLC). BLC stands for the unconscious, implicit knowledge of grammar and the explicit knowledge of most frequent vocabulary items that all native speakers share. This issue has received surprisingly little attention among researchers. HLC differs from BLC in that BLC is oral language rather than written language, and HLC contains the less frequent grammar rules and the infrequent vocabulary.

The group discussed whether in Hindi lexically ambiguous words could have a BICS and a CALP meaning, as in English, where odd means 'strange or abnormal' in everyday language, but has a specific meaning in mathematics, namely any number that cannot be divided exactly by 2 (e.g. 3, 5, 7, etc.). It can be very difficult for children to learn the meaning of such ambiguous words in maths. According to members of the audience such ambiguity is not common in Hindi.

The discussion then moved on to word problems in maths, that is problems which are formulated in the form of a narrative, and students need to extract the arithmetic problem from this narrative. In particular those problems which are not supported by any visual material (illustrations or graphs) are difficult for children who need to solve these problems in a second language that is not spoken at home.

Trakulphadetkrai et al. (2017) found this was also the case for multilingual learners in the UK. Primary school children who had migrated to the UK not more than five years before the point of data collection were significantly less good at solving such word problems than monolingual children who had grown up with English only. This means that multilingual children in India and the UK face similar problems and teachers in both countries can learn from each other.

- Cummins, J. (1999). BICS and CALP: Clarifying the Distinction. <https://eric.ed.gov/?id=ED438551>
- Hulstijn, J. (2015). *Language proficiency in native and non-native speakers*. Amsterdam: Benjamins.
- Trakulphadetkrai, N.V., Courtney, L., Clenton, J. Treffers-Daller, J. & Tsakalaki, A. (2017). The contribution of general language ability, reading comprehension and working memory to mathematics achievement among children with English as additional language (EAL). *International Journal of Bilingual Education and Bilingualism*.

