

An Exploration of Children's Experiences of Learning English and Mathematics at School and Elsewhere in Multilingual, Postcolonial Singapore

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FOCUS OF STUDY

The study centred on the teaching and learning of young children of diverse linguistic backgrounds in the medium of English. The project elicited children's descriptions of their experiences of learning in English and mathematics lessons at three levels of the primary school (P1, P3, and P5) and on their teachers' views and rationalisations of their teaching. In essence, the study examined the perceptions of teachers and pupils on language and the curriculum. Three booklets present the project findings, Jones, S. A., Yeo, L. R-C., Yeo, K. K. J., Seilhamer, M. F., Loh, M.Y., & Ho, H. L. 2019a, 2019b, 2019c).

KEY IMPLICATIONS

- Teachers' and pupils' perceptions of the disciplines of English and mathematics and their purposes in life and in the curriculum were grounded in the everyday. The participants saw the subjects as largely pragmatic and functional. Strong inter- and intra- subject boundaries were set up and maintained by the structure of the curriculum as well as the people working within it.
- Primary school pupils evidenced metacognitive awareness. However, many could not articulate their ideas beyond the general, especially about language, and

their learning strategies in mathematics were often related to practice and memory. Thus, pupils' metacognitive capacities are likely to be general and their metalinguistic awareness just developing.

- Teachers and pupils were concerned about English language as learning vocabulary and reading. However, there is a need to focus on productive, exploratory talk, and metatalk in the subjects. This means paying attention to talk for teaching, learning, and thinking. Pupils placed a high value on good explanations in English and mathematics both at home and school, highlighting the need for such talk.
- The study suggests that pupils' metalinguistic awareness and participants' perceptions of subject boundaries are factors in the potential for children to transfer their learning within and across the curriculum disciplines. A diagram of inter-related factors is on page 18 of Booklet 3 of the project published for teachers, reproduced and referenced below.

BACKGROUND

Language is crucial in children's cognitive development and in teaching and learning in all subjects at school. There is little research on how teachers and pupils perceive language

and the curriculum, especially in multilingual environments where English is the school language but not necessarily the home language for some children. There are three theoretical perspectives to this research 1) the primary school curriculum, 2) the role of English language in school teaching and learning in a multilingual context, and 3) situated learning and the potential transfer of pupils' learning.

KEY FINDINGS

- Teachers and pupils viewed subjects as segmented into levels, skills, topics, and assessments. This seems to lead to the use of short-term pedagogies, for example, identifying key words in mathematics and teaching grammar as rules and for assessment in English.
- While pupils were to varying degrees metacognitively aware, they were less metalinguistically aware.
- There was greater concern with learning vocabulary and reading than with talk for teaching, learning, and thinking in English and mathematics.
- Curriculum segmentation and pupils' awareness (metacognitive and metalinguistic) appear to be two of the many factors which can affect whether and how children may transfer their learning of language and concepts within and across subjects.

SIGNIFICANCE OF FINDINGS

Implications for Practice

Implications for practice: teaching can refocus on developing pupils' learning and understanding for long term progress. Listening and speaking should be given greater emphasis in lessons.

Implications for research

The factors affecting transfer of learning in the diagram reproduced at the end of this brief should be further researched to discover which are particularly important for the Singaporean teaching and learning context.

Implications for teacher professional development

Teacher language awareness can be strengthened, especially with regard to understanding the role of language in cognitive development and in teaching and learning in all curriculum subjects. This would improve teacher explanations and metatalk.

PARTICIPANTS

Researchers, Pupils and Teachers

A team of researchers from NIE NTU, ELIS MOE, and CPDD MOE worked in three primary schools with 17 teachers and 227 pupils at the school levels of P1, P3, and P5.

RESEARCH DESIGN

The methodological approach was a qualitative, cross-sectional, exploratory case study of participants' perceptions and lesson processes at three levels (P1, P3, and P5) of three primary schools. Data were gathered through surveying and interviewing teachers and pupils as well as observing their English and mathematics lessons, 48 in total. The content of participant responses and the pedagogy of lessons were analysed by frequency counts and coding with constant comparison built in across levels and the two disciplines.

REFERENCES

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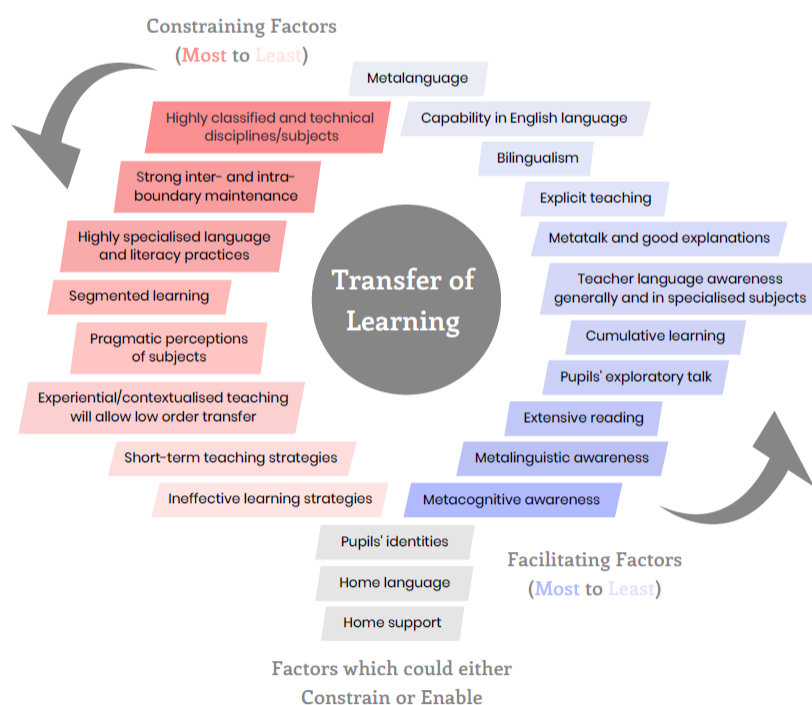
CONCLUSIONS ABOUT TRANSFER OF LEARNING extract from Booklet 3, p.18

CONCLUSION

Conclusions about Transfer of Learning

Finally, one of our research questions asked how far the language taught in English might be transferrable to mathematics lessons. Our findings show a much more complex picture than we first hypothesised, showing many interrelated factors to do with pupils' and teachers' experiences and perceptions about mathematics and English (also the topics of research questions of booklets 1 and 2 of this series). We present a diagram to illustrate some constraining and enabling factors implicated in pupils' ability to transfer learning to fresh contexts over time which emerged from our study.

Our study and review of the literature suggests a 'most to least' ranking of the factors, but it is likely that this ranking will vary according to context. Additionally, some highly influential factors may be either constraining or enabling such as pupils' identities, home language, and home support.



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