

## **Fostering Science Teachers' Language Awareness**

### Exploring the Impact on Teachers' Oral Interactions with Students to Support Science Writing

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#### **KEY IMPLICATIONS**

- Enhancing teachers' language awareness can be an effective way of building teachers' capacity to support students in science writing.
- An important tool for learning about and teaching the language demands of science is metalanguage, especially those that help to deconstruct scientific texts and explicate the conventions of scientific language.

#### **BACKGROUND**

Previous research has revealed a tendency among science teachers to attribute students' language-related challenges in science mainly to the use of technical terms (Seah, 2015). While scientific language is a highly technical language, there are a number of inherent grammatical features that could also pose significant difficulties to students (Fang, 2005). Previous projects (OER 65/12 SLH, OER 16/14 SLH) also suggest that raising teacher language awareness (TLA) may better equip teachers in their science instruction.

#### **FOCUS OF STUDY**

This proposal is an attempt to test and validate this assumption. One obvious indicator of TLA that can have a direct impact on students is teachers' oral interactions to support students' writings.

#### **KEY FINDINGS**

Following our research interventions, the teachers made deliberate attempts to explicate the representational demands of science writing in addition to the conceptual demands when scaffolding the construction of scientific explanations. The discursive strategies adopted by the teachers to support student writing were wide-ranging. The teachers were able to provide students with specific feedback on how the students' language was not able to represent meanings that are aligned with the scientific perspective through the extensive use of metalanguage in their oral interactions with the students. Four types of metalanguage (grammar, language conventions, science content, science practice) were used by the teachers, which allowed the teachers to make transparent the connections between language and disciplinary content cum practices. In addition to their language awareness and teaching practices, the research has also benefited the teachers in terms of a shift in their: (i) beliefs on the role of language in science teaching and learning, and (ii) assessment practices.

Analysis of the TLA uncovered multiple components within three dimensions: knowledge about (scientific) language, knowledge about students and procedural TLA. Besides the use of metalanguage in their oral interactions, the

teachers displayed their TLA in activity design, task scaffolds, use of student writing as resources for teaching and learning, use of visual aids to facilitate learning about language and feedback for students. Finally, a framework for understanding students' language challenges was also developed as part of this study.

## SIGNIFICANCE OF FINDINGS

### Implications for practice

By raising their TLA, the teachers were able to interpret the language challenges encountered by their students and addressed them in the lessons.

### Proposed follow-up activities

To further enhance our understanding of science teachers' development of language awareness and capacity to support students in science writing, it is important to establish greater insights into how teacher capacities develop along a trajectory towards greater sophistication.

## PARTICIPANTS

A total of six teachers, two teaching Primary 5, one teaching Secondary 1 and three teaching Secondary 4, took part in this study. They came from two primary schools and two secondary schools.

## RESEARCH DESIGN

This project adopted a case study approach that studies the inquiry process undertaken by individual teachers (in collaboration with researchers) and their oral interactions with students to develop science writing. To develop the TLA, the participating teachers underwent iterative cycles of inquiry (Timperley, Wilson, Barr & Fung, 2007).

## REFERENCES

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