

ZMATH 2016f.00347

Smit, Jantien; Bakker, Arthur; van Eerde, Dolly; Kuijpers, Maggie

Using genre pedagogy to promote student proficiency in the language required for interpreting line graphs.

Math. Educ. Res. J. 28, No. 3, 457-478 (2016).

Summary: The importance of language in mathematics learning has been widely acknowledged. However, little is known about how to make this insight productive in the design and enactment of language-oriented mathematics education. In a design-based research project, we explored how language-oriented mathematics education can be designed and enacted. We drew on genre pedagogy to promote student proficiency in the language required for interpreting line graphs. In the intervention, the teacher used scaffolding strategies to focus students' attention on the structure and linguistic features of the language involved in this particular domain. The research question addressed in this paper is how student proficiency in this language may be promoted. The study comprised nine lessons involving 22 students in grades 5 and 6 (aged 10–12); of these students, 19 had a migrant background. In light of the research aim, we first describe the rationale behind our design. Next, we illustrate how the design was enacted by means of a case study focusing on one student in the classroom practice of developing proficiency in the language required for interpreting line graphs. On the basis of pre- and posttest scores, we conclude that overall their proficiency has increased. Together, the results indicate that and how genre pedagogy may be used to help students become more proficient in the language required in a mathematical domain.

Classification: C53 D43 K43

Keywords: genre pedagogy; design study; graphs; mathematical language; scaffolding; teaching and learning cycle

doi:10.1007/s13394-016-0174-2