Teaching
Mathematics and
Computer Science

Developing a method to determine teachers' and pupils' activities during a mathematics lesson

MAIJA AHTEE, ERKKI PEHKONEN, ANU LAINE, LIISA NÄVERI, MARKKU S. HANNULA and PIRJO TIKKANEN

Abstract. Third-graders from nineteen classrooms (N=316) were asked to draw a picture on a mathematics lesson. Based on these drawings we have developed a data analysing method that allows us to find out how pupils present both their teacher's and their classmates' activities in their drawings. Two inventories were formed that contain, respectively, teachers' and pupils' activities during a mathematics lesson as seen in the pupils' drawings. The first inventory contains 14 separate items organized into six groups that contain teacher activities like asking questions and giving feedback on mathematics. Ten of the items are related to teaching and the rest contain items like keeping order in addition to the teacher's location in the classroom. Respectively, pupils' activities are organized into five groups that contain altogether 22 items. These contain the activities of a single pupil, and also pupil-teacher and pupil-pupil discussions on mathematics.

Key words and phrases: pupils' drawings, mathematics lesson, teachers' and pupils' activities.

ZDM Subject Classification: C70, C80.

M. AHTEE, E. PEHKONEN, A. LAINE, L. NÄVERI, M. S. HANNULA UNIVERSITY OF HELSINKI HELSINKI, FINLAND

E-mail: maija.ahtee@helsinki.fi
E-mail: Erkki.Pehkonen@helsinki.fi
E-mail: Anu.Laine@helsinki.fi
E-mail: Liisa.Naveri@elisanet.fi
E-mail: Markku.Hannula@helsinki.fi

Copyright © 2016 by University of Debrecen

P. TIKKANEN UNIVERSITY OF JYVÄSKYLÄ JYVÄSKYLÄ, FINLAND

E-mail: pirjo.tikkanen@hirspek.fi

(Received February, 2016)