IT’S ABOUT TIME: AN EXPLANATORY STUDY ON CHILDREN’S DIFFICULTIES WITH THE CONCEPT OF TIME

Burny, E.¹, Valcke, M.¹ & Desoete A.²

¹Department of Educational Studies, Ghent University; ²Department of Experimental, Clinical and Health Psychology, Ghent University

Time-related competences (TRC’s) such as clock reading, measuring time intervals and word problems involving time are an important topic in primary school mathematics. Research on the development of TRC’s concludes that time is a very difficult concept for children but it doesn’t illuminate why TRC’s are difficult or how they should be taught to children (Friedman, 1982; Piaget, 1969).

An important question in order to understand the difficulties involved in the acquisition of TRC’s is how these competences relate to other skills (Foreman, 2007). Based on theories of cognitive development (e.g. elaboration theory), we expect the development of TRC’s to be a result of the integration of earlier acquired competences in the field of mathematics, language and visuospatial abilities.

Based on test results of 817 Flemish primary school children (grades 1-6), the role of mathematical skills, language competence and visuospatial abilities in the development of TRC’s was determined, using structural equation modelling (SEM).

The results of this study show that the development of TRC’s is a gradual process that builds upon mathematics and language, but not on visuospatial abilities. The current study also reveals that basic TRC’s mainly build upon mathematical skills, whereas more complex TRC’s require an integration of mathematical and linguistic competences. The time-related difficulties children are confronted with in primary school could thus be due to an insufficient basic knowledge of mathematics and/or language. Consequently, TRC’s shouldn’t be taught to young children until basic mathematical knowledge is acquired and remedial teaching should account for the mathematics and language involved in TRC’s.

References

