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Elementary school students' strategic learning: does task-type matter?

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Abstract This study investigated what types of learning patterns and strategies elementary school students use to carry out ill- and well-structured tasks. Specifically, it was investigated which and when learning patterns actually emerge with respect to students' task solutions. The present study uses computer log file traces to investigate how conditions of task types that might affect strategic learning. Elementary school students ($N = 12$) participated in two science study lessons. During these lessons the students were asked to solve well- and ill-structured tasks. For both of these tasks, the students used the gStudy learning environment designed to support strategic learning. In addition, gStudy records traces of each student's strategic actions as they proceed with tasks. First, the students' task solutions was rated according to three categories, namely "on track", "off track" and "partial solution". Second, learning patterns in terms of learning strategies that emerged throughout these tasks were investigated. Third, detailed cross case analysis was used to explore in depth how and when these learning patterns were used with respect to the students' task solutions. The results show that young students' can provide in-depth task solutions, but also adapt to the task complexity. However, despite the task types being different, the students had same types of learning patterns. The detailed cross-case comparison of the students' task solutions with respect to learning patterns indicates that there are intra individual differences concerning how students allocate their learning strategy use. Especially if the task is ill-structured, it can also mislead the students to focus on irrelevant aspects and hinder strategic learning.

Keywords Self-regulated learning · Learning strategy · Task understanding · Learning pattern · Logfile traces · gStudy, ill- and well-structured tasks

When teachers assign different types of tasks to students, they often assume that the features of the task will guide the students' strategic learning in specific, desired ways. As students carry out those tasks, they have to make strategic decisions about how adapt their learning to reach the desired learning goals (Lodewyk and Winne 2005). The problem here is that the students do not necessarily understand the purpose of the task, which can lead to the selection of a less

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