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Learning strategies and student achievement – experience from the implementation of an educational programme²

Extended summary

The article presents the research on the results of one educational programme aimed at supporting students to learn how to learn, i.e., to develop learning strategies by fostering their self-regulation in learning. The programme is based on sociocognitivist and socioconstructivist views on learning, more precisely, on the concept of self-regulated learning as a process in which students set their own learning goals, and then plan, monitor and regulate their learning (use different learning strategies), evaluate its process and outcomes, and use feedback to better plan their next learning. In addition, socioconstructivists emphasized that such learning is not merely an individual act, but that it is mediated by social interactions and activities in the classroom (hence the term: co-regulated learning), which, in turn, changes the very context of learning. Studies showed that different components of self-regulated learning, i.e. different cog-

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nitive, motivational and behavioural strategies, contribute to students' academic achievement: goal-setting, planning, time management, organisation, elaboration, effort regulation, self-efficacy, metacognition, etc.

The programme was focused on enabling students to use Bloom's taxonomy as an aid in their learning to develop different learning strategies. This was accompanied by various changes in the process of teaching/learning which included demystifying the assessment process, students' new roles and activities, and changes in interpersonal relations in the teaching process. The programme included several steps – students were first familiarised with the taxonomy and its use in the construction of test items and, later on, various activities were organised in which students had a task to create tests for different purposes (to test their peers, to use in class competition, but also to test the teacher). These activities were followed by class discussion and analysis of the created items. As a final step, students had a task to use the taxonomy in learning new lessons by themselves, i.e., to create test items for the new contents they were learning.

The research aimed to examine the programme's contributions to students' learning strategies and their achievement, as well as to determine the correlation between students' use of different learning strategies and their academic achievement at the beginning and after the implementation of the programme. The programme was implemented in one fourth-grade student group in a vocational school from Belgrade (N = 23). The data on students' learning strategies were gathered using the MSLQ questionnaire, which was administered before and after the implementation of the programme. Nine subscales related to learning strategies were used: cognitive and metacognitive strategies (Rehearsal, Elaboration, Organisation, Critical Thinking, Metacognitive Self-Regulation) and resource management strategies (Time and Study Environment, Effort Regulation, Peer Learning, Help Seeking). The results of the knowledge tests, which included the tasks related to contents of the subject within which the programme was implemented, were used for measuring the students' achievement. Three knowledge tests were administered: at the beginning of the programme (initial test), after two months (formative test), and at the end of the programme (final test). For data analysis, we used descriptive statistics, paired samples t-test and Pearson correlation coefficient.

The results show that the programme has contributed both to students' learning strategies and to their achievement. A significant progress was observed regarding the elaboration strategies, critical thinking, metacognitive self-regulation, peer learning and help seeking. As for the programme's contribution to students' achievement, the analysis showed that all students made significant progress from the initial test to formative test, and that their test results remained high on the final test. However, not many statistically significant relationships between students' use of different learning strategies and their achievement were found. Before the implementation of the programme, the students who had higher scores on metacognitive self-regulation, organisation of time and study environment, as well as effort regulation, had higher achievements on the initial test. The analysis showed that after the implementation of the programme, only the score on the peer learning strategy was moderately correlated to students' achievement on the final test. Also, the students who made the biggest progress in terms of effort regulation were the ones who made the biggest progress in their achievement.

From socioconstructivistic viewpoints on teaching and learning, these results could be interpreted by a complex interrelation between learning strategies, achievement and the context in which learning is occurring. Thus, it is inadequate to research them as isolated variables and look for causal links between them. The programme's contribution to students learning strategies and their achievement could only be interpreted as a product of the programme as a whole. The pedagogical implication of the research is that for the change in the quality of education to occur, it is not sufficient to change individual segments of teaching/learning (e.g. train students to use isolated strategies), but it is also important to change the complete context of learning.

Keywords: learning strategies, student achievement, self-regulated learning, co-regulated learning, evaluation of education quality.

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