

Abstract

Self-regulated learning among students has been widely studied. Studies suggest a connection between self-regulated learning (SRL) and the student's achievements (Azevedo, 2008; Zimmerman B. J., 2008). Self-regulated learning is a complex and dynamic process in which the student is active in his studies. The student sets learning objectives, exerts control over the learning process and motivation by selecting strategies that are helpful in achieving the objectives, and finally reflects on the learning process, all the while interacting with the characteristics of the context in the learning environment (Boekaerts, 1999; Butler & Winne, 1995; Schraw, Crippen & Hartley, 2006).

Teachers are an important factor in a student's development and therefore in the last few years researchers have viewed the inculcation of pedagogical knowledge of SRL as an essential part of teacher training, since if teachers will take on board the importance of SRL they will be more easily and better able to instil strategies for self-regulated learning (Kramarski & Michalsky, 2009; Randy, 2004).

One way to develop teacher's pedagogical knowledge is to use a case study of the pedagogical situation (Davis, 2003; Zimmerman, 2002).

The researchers Turner (1995) and Zottmann (2011) assert that from the teacher's point of view, the preferred way to learn to analyze situations is to use video.

Research shows that one of the differences between expert teachers and novices in the analysis of pedagogical situations (recorded and not recorded) is in how they address student-teacher interaction in a given situation. This ability is extremely important, since the observation and analysis of pedagogical situations focused only on the teacher's activities is an incomplete/partial observation that does not provide a

complete picture of the true classroom situation and hinders teachers' professional development in that the teacher does not learn to respond correctly to the processes occurring in the classroom (Kong, 2010; Korthagen, 2010; Sherin & van Es, 2005)

This study examined the effect of the analysis of pedagogical situations recorded on video – with emphasis on analysis of the teacher-student interaction – on teachers' SRL teaching and on students' achievements, and on the use over time of SRL on their part.

The innovation in our study is in the analysis of pedagogical situations on the level of self-guidance, using video recordings that put the emphasis on the teacher-student interaction.

The aim of the study was to develop, implement and assess a model that fosters math teachers in the teaching of SRL strategies and to examine the effect of the model on students' achievements in math in the short and long term and on the use of self-guidance strategies when solving mathematical problems.

Our study addressed three central aspects:

1. The effect of teachers' training in analyzing pedagogical situations of self-regulation in math classes recorded on video on the teaching of self-regulation strategies in math teaching.

The effect of teachers who have been trained in the analysis of pedagogical situations of self-regulation in math classes recorded on video on the use of SRL strategies of students when solving mathematical problems.

3. The effect of teachers' training in analyzing pedagogical situations of self-regulation in math classes recorded on video on their students achievements in math.

140 students and 6 teachers participated in the study. The students are studying 10th grade mathematics for 4-5 study units in six different classes countrywide.

Teaching that fosters self-regulation of the teachers who participated in the study was coded according to a coding table developed for the purposes of the study and constructed on the basis of the table developed by researchers (Dignath & Büttner, 2010), extending it from the point of view of the teacher only to an additional point of view that is the teacher-student interaction.

The results of the study show that teachers who have been trained in analyzing pedagogical situations of SRL recorded on video that emphasize the teacher-student interaction, contribute to an increase in the number of times the teacher teaches in his classroom (in all three types of SRL strategies: cognition, meta-cognition and motivation) and the way the regulation is taught. The study also shows that teacher training in the analysis of pedagogical situations of SRL had a considerable effect on the extent to which students use the various SRL strategies when solving mathematical problems and led to an increase in students' achievements.

The innovation we sought to introduce in this study is expressed in three aspects: the theoretical, the methodological and the practical. From the theoretical aspect, our innovation is that the professional development of teachers is dependent on analysis of the interaction between the teacher and the student and not only on the unilateral observation of one of them and that teacher training in the teaching of self-guided learning strategies improves the teaching of self-guided learning strategies on the part of the teachers, the students' achievements in math, and the extent to which students use self-guided learning strategies.. From the practical aspect, this study developed a model for the development of teachers in the cultivation of self-guidance using an analysis of pedagogical situation on video, emphasizing the element of teacher-student interaction in imparting the strategies and preserving them over time.