

**The Connection between Analyzing Videoed
Pedagogical Situations and Self-Regulated Learning
(SRL) Instruction**

School of Education

Ph.D Thesis

Galit Shabtay

Submitted to the Senate of Bar-Ilan University

Ramat –Gan, Israel

February, 2016

Abstract

Self-regulated learning (SRL) refers to the thoughts, emotions and actions that we generate in order to achieve our learning goals (Boekaerts, 1999; Schraw, 2006). The operative definition of SRL refers to three components: the cognitive, the meta-cognitive and the motivational (Boekaerts, 1999). To educate learners in SRL, we must provide teachers with pedagogical knowledge that will help them nurture this tendency in their students. This pedagogical knowledge includes how teachers represent, exemplify, explain, interpret and describe the subject matter so that others will be able to understand it (Shulman, 1986). Research shows that teachers currently lack the theoretical and practical pedagogical knowledge they need in order to foster SRL amongst their students (Kistner et al., 2010).

Teachers can foster SRL through both direct and indirect teaching. Direct teaching includes explicit statements about the cognitive, meta-cognitive and motivational strategies that can be employed in the problem solving process. Indirect teaching, on the other hand, generates a powerful learning environment that allows students to acquire the knowledge on their own. Such an environment, according to De-Corte et al. (2005), includes four components: the learners' activity, the relationship between the learners and their environment, independent learning, and "constructive learning" (i.e. connecting the topic being learned to previous knowledge components relevant to the learners' daily lives, and connecting different topics to one another).

Recently, a teacher education method was developed that uses filmed pedagogical situations to promote teachers' pedagogical knowledge (Blomberg, Sturmer & Seidel, 2011; Borko, Koellner & Jacobs, 2014; Seidel, Blomberg & Renkl, 2013). This method

has been found to be effective in studies conducted both in Israel (Eisenmann, 2007; Robinson, 2009) and abroad (Blombg, et al., 2011; Borko, et al., 2014; Santagata & Guarino, 2011).

The study presented here examined the effect of analyzing filmed pedagogical situations that emphasize SRL in mathematics lessons on teachers' pedagogical knowledge. The study population consisted of 167 mathematics teachers from primary schools in Israel's central region. The population was divided into four groups. All four groups analyzed aspects of the powerful learning environment, but each group emphasized different strategies for SRL:

- Group A focused on analyzing pedagogical-mathematical knowledge through the traditional approach. It served as the control group.
- Group B focused on analyzing pedagogical-mathematical knowledge and on teaching motivational strategies.
- Group C focused on analyzing pedagogical-mathematical knowledge and on teaching cognitive and meta-cognitive strategies.
- Group D focused on analyzing pedagogical-mathematical knowledge and on teaching **all of the components of SRL**.

Before and after the intervention, the participants were given questionnaires, in which the teachers were asked to analyze written pedagogical situations and present their teaching-learning perceptions. The teachers were also asked to plan lessons. Ten teachers from each group were filmed both before and after the intervention. The filmed lessons were analyzed using a computer program (The Noldus Observer XT11),

which lent greater accuracy to the assessment of the teachers' actions. Furthermore, to determine how the teachers in the different groups influenced their students, the self-regulation and achievements of the students were assessed before and after the intervention.

The statistical analysis in this study included repeated measures of the teachers' questionnaires, the analysis of the lessons that they taught and the correlations between the independent variables. Similar statistical analysis was performed on the students' questionnaires and achievements as well.

The study's assumptions and results:

1. The first assumption upon which the study is based was that the teachers in the four research groups would differ from one another in the type and amount of SRL strategies they taught their students, and in the manner in which they chose to teach, and that these differences would be based on the SRL component that was emphasized in each group. The results clearly showed that greatest number of SRL strategies was taught by the teachers in group D, which was exposed to the full range of SRL strategies. In the group that was exposed only to cognitive and meta-cognitive strategies (group C), the teachers only taught these strategies explicitly, and ignored the motivational strategies. In the group that was only introduced to the motivational strategies (group B), the teachers only taught these explicitly. Finally, in the group in which the teachers were not exposed to SRL at all, they employed traditional teaching methods. We were able to identify identical strategies being taught

by groups B and D, which addressed motivation, and in groups C and D, which addressed cognition and meta-cognition.

2. The second assumption addressed the expected differences in how the teachers in the four research groups would organize the learning environment. The results showed that the teachers in group D used a richer environment, based on all the research tools (lesson plans, personal interview and teaching in practice), than the teachers in the other groups. The other groups showed rich learning environments through the declarative tools (interview and lesson plans), but this was not reflected in their teaching practice. This finding suggests a close connection between the learning environment and explicit instruction in strategies for SRL.
3. The third assumption was that the four groups would differ in their lesson analysis (as expressed in the interviews), their lesson planning, their teaching and their organization of the learning environment. The results showed that the group that placed the greatest emphasis on fostering SRL was group D, followed by group C, then group B, and last of all group A. Moreover, they also showed identifiably similar emphases in the strategies taught by groups B and D, which addressed motivation, and groups C and D, which addressed meta-cognition. Based on these results, this assumption was indeed confirmed.
4. The fourth assumption addressed the teachers' perceptions of teaching, and how these would change between the beginning of the study and its end. We found that the teachers in group D changed their perceptions of teaching-

learning significantly, becoming more constructivist in their perceptions than their fellows in the other groups.

5. The fifth assumption addressed the positive connections that would be found between the teachers' professional knowledge components: their analysis of pedagogical situations, their lesson planning, their constructivist perceptions of learning, their teaching of SRL strategies in practice, and their organization of an SRL-promoting learning environment. Such positive connections were found.
6. The final assumption referred to the differences that would be found in the achievements of students learning from teachers in different groups. We found changes in the students' achievements, based on questionnaires and personal interviews. These changes ranged, from greatest to smallest, in the following order: group D, group C, group B and group A. This indicates that the assumption was confirmed.

The primary conclusion that arose from the study's results is that developing teachers' pedagogical knowledge by emphasizing all three components of SRL improves teachers' pedagogical knowledge and their perceptions. This knowledge was expressed in the teachers' lesson plans, their teaching, their analysis of written pedagogical situations and their perceptions of teaching-learning. Moreover, the achievements of the students, and the use of SRL strategies, were higher amongst the students taught by the teachers in group D, which was trained in all aspects of SRL.