Supporting cognitive and metacognitive learning strategies in technologically enhanced language learning

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Summary

Introduction

The widespread use of learning technologies in different educational settings has generated the growing need for students to self-regulate their learning activities (Bannert & Reimann, 2012). Many studies have identified a significant positive correlation between academic achievement and self-regulated learning ability (Dabbagh & Kitsantas, 2005; Schunk & Zimmerman, 1994). However, students rarely demonstrate adequate skills of self-regulation which in turn may prevent them from achieving satisfactory academic results (Kiewra, 2002; Lee et al., 2010). Similar deficit of self-regulated learning skills has been reported in the studies of language learning (Benson, 2011).

Self-regulated learning skills are of crucial importance to be academically successful, at the same time they seem to be one of the most complicated learning skills to acquire. As there is no single understanding of an efficient way of scaffolding self-regulation, the focus of the current study is on the introduction and assessment of the model of developing effective language learning strategies (LLSs) and self-regulative strategies in the context of language learning. We based the developing of the model on the theoretical framework of Oxford's LLSs (1990) and the theory of self-regulation by Pintrich (2000).

According to Oxford and Crookall (1989), LLSs have the features of contributing to the main goal, allowing learners to become more self-directed, being problem-oriented, including specific actions taken by the learner, involving many aspects of the learner, not just cognitive, supporting learning both directly and indirectly, being not always observable, being conscious, possible to be taught, flexible, and influenced by a variety of factors. Oxford (1990) considered both cognitive and metacognitive

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strategies necessary for efficient language learning and so both of them are included in her framework.

Pintrich's (2000) general framework for theory and research is based on four assumptions: active, constructive assumption; potential for control assumption; goal, criterion or standard assumption; and finally, mediators between personal and contextual characteristics and actual achievement or performance. Drawing from these assumptions he defined self-regulated learning (SRL) as an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behaviour, guided and constrained by their goals and the contextual features in the environment (Pintrich, 2000).

Earlier researches have provided evidence that the most efficient support for learner's self-regulation is combined metacognitive scaffolding. Meta-cognitive scaffolding enables to foster several aspects of SRL, including self-monitoring, strategy use and interest (Winters et al., 2008) whereas the best results are achieved by the combination of cognitive and metacognitive support. Prompting has been reported to be the most efficient intervention for supporting strategy use (Kramarski & Michalsky, 2009; Lee et al., 2010).

In this study we used the knowledge received in the literature review on the most efficient ways of supporting learners' cognitive and metacognitive learning strategies, and designed a model to support the use of these strategies in the blended language learning course. The model (Saks & Leijen, 2014) comprising four learning assignments provided with prompts was applied to the Tourism English course. The research questions of the current study were the following: (1) find out whether and how the learners' use of LLSs changed as a result of the intervention where the learning assignments provided with prompts were used; (2) find out whether and how the learners' use of self-regulative learning strategies changed as a result of the intervention where the learning assignments provided with prompts were used; (3) find out whether and how the learners' content knowledge improved as a result of the intervention.

Methodology

To improve the learners' use of cognitive and meta-cognitive strategies the intervention with four language learning assignments was designed and provided with prompts. The assignments were specially designed to take maximum advantage of the affordances of the digital learning environment (Moodle). Special attention was paid to students' active use of language when solving problems connected with real life situations in the

tourism industry. Students' interaction and communication were encouraged throughout the whole learning process, as well as in preparatory and follow-up phases. All learning activities were reflected orally in the classroom, as well as in written form in students' learning diaries.

The data were collected from 28 students, 5 men and 23 women, who took the first year English for Specific Purposes, Tourism English course during a four month period. The average age of the students was 20.18, the duration of their previous English studies was approximately 10 years, the average score of the national English examination (B2) having been taken four months earlier was 75.14 points out of 100.

The data were collected with three self-report questionnaires translated and adapted for Estonian learners – Est-SILL for LLSs, MSLQ and SRL-SRS for self-regulation. The latter was used to have a more detailed insight into learners' self-regulative processes as this instrument enables the measurement of planning, monitoring and evaluating separately. Content knowledge was assessed with the content test compiled by the first author. The test included the tasks that combined different language skills and assumed using different LLSs. The data were collected with pre- and post-tests.

Results and conclusions

Previous research has revealed that the most efficient way of supporting learners' use of cognitive and metacognitive learning strategies is their combined scaffolding with prompts (e.g. Brunstein & Glaser, 2011; Kramarski & Michalsky, 2010; Lee et al., 2010). On the basis of that a model and concrete assignments were developed to support learners' cognitive and metacognitive strategies. For intervention four specific language learning assignments were designed and accompanied with prompts. Prompting scaffolded strategy instruction in the classroom as well as in the digital learning environment. During designing the model it was considered necessary to provide various phases of the tasks with prompts of cognitive as well as metacognitive strategies. Students were encouraged to plan, monitor and self-evaluate their learning activities with constant discussions in the class and by supporting prompts in the web-based environment.

The results of the measurement confirmed the results of many earlier studies where combined scaffolding had proved to be efficient to support learner's use of learning strategies (Askell-Williams et al., 2012; Bannert & Reimann, 2012; Kauffman et al., 2011; Nash-Ditzel, 2010). The results of paired samples t-tests indicated that the developed assignments supported

with prompts promoted the usage of all more advanced LLSs, while active use of language, compensation and social strategies improved most of all (Table 3). This can be explained with the use of communicative language learning methods and the learning assignments that assumed active communication and self-expression orally as well as in written form. The only strategy group that did not show significant improvement was the one of memory strategies. According to Oxford (1990), memory strategies are mainly exploited by beginners, and usually they are replaced with more advanced strategies in further studies.

The results also showed that supporting metacognitive learning strategies in combination with cognitive ones advanced most of all learners' metacognitive self-regulation, primarily their planning and evaluating activities (Table 4). At the same time it supported learners' control of their learning beliefs which in turn helped to advance their intrinsic motivation. To support learners in the phase of monitoring, they probably need more direct support from the teacher in the form of oral prompts and instruction.

The results of the content test indicated that the assignments prompting learners' use of cognitive and metacognitive learning strategies assist gaining content knowledge and language skills, and also support learners' self-expression in English. The combined assignments included in the content test revealed the learners' ability to apply new knowledge and skills, and express them verbally in English.

Our findings are in line with the conclusion that the combination of cognitive and metacognitive scaffolding accompanied with prompts is a vehicle for promoting learners' self-regulation and better learning gains (Bannert & Reimann, 2012; Berthold et al., 2007; Brunstein & Glaser, 2011; Kramarski & Gutman, 2006; Kramarski & Michalsky, 2009, 2010). The present study also calls for further scrutiny of supporting learners' monitoring activities.