Towards an efficient meta-level processing: The effects of concept mapping and summarization on second language reading and metacognitive accuracy

Active reading comprehension depends not only on readers' decoding and comprehension skills, but also on their ability to evaluate their comprehension during reading. Evidence from the existing literature indicates that some readers show poor skills in monitoring comprehension when reading in a second language (L2). Although a number of studies have explored and described this metacognitive ability in detail, there is a lack of converging empirical evidence on the most effective instructional methods that can improve L2 readers' metacognitive accuracy.

Using a mixed-methods intervention research design, this study examines the effects of two types of instructional approaches, concept-mapping and summarization, on L2 readers' reading comprehension and metacognitive accuracy. To answer the research questions, a combination of offline and online measures was used. The Gates-MacGinitie test was used to measure participants' reading comprehension level, and a confidence judgment task in which participants were asked to evaluate their comprehension performance in the Gates-MacGinitie test was used as a measure of participants' metacognitive accuracy. A technology-supported online instrument (eye tracker) was also applied to stimulate participants to recall their thoughts during reading.

This study was conducted in Algeria involving 60 undergraduate students enrolled in an English as a foreign language class. Participants were divided into three groups: the summary, the concept mapping and the control groups. Participants' reading comprehension and metacognitive accuracy were assessed before and after the intervention. Ten participants from each group took part in the stimulated recall task in the pre- and post-test phases. The aim of this procedure was to explore the effects of the intervention on the mental processes readers engage in during reading.

The obtained quantitative data revealed that unlike summarization, the concept mapping intervention was effective in enhancing both students' reading comprehension level and metacognitive accuracy through decreasing the amount of bias (over-confidence or under-confidence) expressed in their judgments of how well they have performed in the comprehension test.

To analyse participants' verbal protocols, I established a framework, the six-space Local Global Situation Cognitive Metacognitive (LGSCM)-schema that differentiates between six types of reading processes. The obtained verbal protocols indicated that participants engaged in a wide range of mental processes during reading. For the concept mapping group, the use of the following types of processes increased significantly after the intervention: establishing propositional meaning, building a mental model and evaluating internal consistency. Nevertheless, the concept mapping group's careful local reading decreased significantly against an increase in global reading from the pre-test to the post-test. This indicates that participants of this group focused more attention on understanding the text's macro-proposition than the micro ones to achieve global understanding of the text. A significant increase in the number of the detected external errors was found for the summary group in the post-test. However, no statistically significant difference in the use patterns of the LGSCM-schema processes was found between the concept mapping, summary and the control groups.

The contribution of these findings to both theory and practice are discussed in the discourse.