



## **Characteristics of High School Students' and Science Teachers' Cognitive Frame about Effective Teaching Method for High School Science Subject**

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**Abstract :** We investigated the cognitive frame of high school students and inservice high school science teachers about effective teaching method, and we also explored how they understood about the teaching methods suggested by the 2009 revised Science Curriculum. Data were collected from 275 high school science teachers and 275 high school students. We analyzed data in terms of the words and the cognitive frame using the Semantic Network Analysis. The results were as follows. First, the teachers perceived that an activity oriented class was the effective science class that helped improve students' problem-solving abilities and their inquiry skills. The students had the cognitive frame that their teacher had to present relevant and enough teaching materials to students, and that they should also receive assistance from teachers in science class to better prepare for college entrance exam. Second, both students and teachers retained the cognitive frame about the efficient science class that was not reflected 2009 revised Science Curriculum exactly. Especially, neither groups connected the elements of "convergence" as well as "integration" embedded across science subject areas to their cognitive frame nor cognized the fact that many science learning contents were closed related to one another. Therefore, various professional development opportunities should be offered so that teachers succinctly comprehend the essential features and the intents of the 2009 revised Science Curriculum and thereby implement it in their science lessons effectively.

**Keywords :** semantic network analysis, cognitive frame, teaching method, science lesson