

## Using Six Hat Model to Enhance Secondary School Student's Chemistry Thinking Skills

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### Abstract

**Purpose and Research Question** - This research study explores the impact of implementing the Six Hats Model on the thinking ability of secondary school students in chemistry education. The Six Hats Model is a structured approach to thinking and decision-making that encourages students to adopt different thinking modes or perspectives. The goal is to enhance students' critical thinking, problem-solving, and analytical skills in chemistry.

**Methodology** - A mixed-methods approach was employed to gather data from a group of secondary school students from a science stream class in a Malaysian secondary school. Quantitative data was collected through pre and post-tests, while qualitative data was obtained through interviews. The quantitative analysis involved conducting an independent samples t-test to compare the pre-test and post-test scores, while the qualitative analysis utilised thematic analysis to identify themes and excerpts related to the impact of the Six Hats Model on students' thinking abilities.

**Findings/Discussions** - The quantitative results significantly improved the students' understanding of chemistry concepts and their ability to answer open-ended questions after implementing the Six Hats Model. The qualitative findings revealed three key themes: improved comprehensive thinking, enhanced reflective skills, and improved thinking efficiency. The students reported that the Six Hats Model helped them approach and analyse chemistry concepts from different perspectives, stimulated their reflective thinking, and made their thinking process more efficient.

**Significance and Contribution in Line with Philosophy of LSM Journal** – Overall, this study provides evidence for the positive impact of implementing the Six Hats Model on the thinking ability of secondary school students in chemistry education. The findings suggest that the model fosters a comprehensive approach to thinking, enhances reflective skills, and improves thinking efficiency. These insights can inform educators and curriculum designers in developing effective strategies to enhance students' thinking skills in chemistry education.

**Keywords:** *Six Hats Model; Critical thinking ability; Secondary school students; Chemistry education; Problem-solving and analytical skills; Mixed-methods approach.*

