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Students' Conceptual Understanding, Metacognitive Awareness and Self-Regulated Learning Strategies towards Chemistry using POGIL Approach

ABSTRACT

This study focuses on the effectiveness of Process Oriented Guided Inquiry Learning (POGIL) in teaching and learning chemical nomenclature. It attempted to assess the conceptual understanding, metacognitive awareness, self-regulated learning strategies and attitude towards POGIL activities within two weeks of instruction. One intact class of first year Bachelor on Industrial Technology students of Pangasinan State University, Philippines enrolled in Chemistry during the 1st Semester 2018-2019 was the subject of the study. Conceptual understanding of students were based on the responses to the Concept Test on Chemical Nomenclature, metacognitive awareness were collected from the responses in the Metacognitive Awareness Inventory (MAI), self-regulated learning strategies were gathered from the responses on the questionnaire on Self-regulated Learning Strategies (SRLS), and attitude towards POGIL activities were collected from the responses in POGIL attitudinal survey. Result of the study revealed that there is a significant change in the conceptual understanding of students after immerged in a POGIL session. With regard to metacognitive awareness, there is also a significant difference in the pre-MAI and post-MAI scores along the eight domain. Moreover, there is also a significant difference between the pre-SRLS and post-SRLS scores of the respondents, however, this was only true for the six domains: elaboration, organization, critical thinking, time and study environment, peer learning and help seeking. On the other hand, as regard to the elaboration and effort regulation there is no significant difference on the pre-SRLS and post-SRLS scores. Result also showed that students also developed positive attitude towards POGIL activities as revealed by their responses in the POGIL attitudinal survey. Thus, this study suggest that the POGIL approach significantly enhances conceptual understanding, metacognitive awareness, and self-regulated learning strategies.

Keywords: POGIL, metacognitive awareness, self-regulated learning strategies, chemical nomenclature