

A Study of Chemistry Literacy Levels of Undergraduate Chemistry Education Students at the Faculty of Education, Chulalongkorn University

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Research Overview

This survey research compares the chemical literacy levels of chemistry education students who have completed their professional teaching practicum (4th-year students and graduates) with those of current chemistry education students who have not (1st and 2nd-year students). The study focuses on evaluating their mastery of high school chemistry content within a teacher education context.

Purpose of Study

The objectives of this research were
1) To assess the level of chemical literacy in high school chemistry content among chemistry education majors. 2) To compare chemical literacy levels between students who have completed their professional teaching practicum and current chemistry education students who have not.

Research Methods

A purposive sample of 30 chemistry education students (Years 1, 2, 4, and recent graduates) from Chulalongkorn University (Academic Year 2025) was used. Data were collected via a specialized chemical literacy assessment tool and analyzed using descriptive statistics and an independent samples *t*-test in Jamovi.

Results and Discussion

The study revealed no significant difference in chemical literacy between students who had completed their professional teaching practicum and those who had not at a .05 significance level ($t = -1.65$, $p = .110$). Notably, all participant groups demonstrated a high level of chemical literacy. Recent graduates achieved the highest mean score ($M = 30.20$, $SD = 4.83$, 83.80%), followed by 4th-year ($M = 28.80$, $SD = 6.42$, 80.00%), 2nd-year ($M = 27.10$, $SD = 4.26$, 75.40%), and 1st-year students ($M = 26.40$, $SD = 5.16$, 73.40%). These high literacy levels in the current chemistry education students (1st and 2nd-year students) are attributed to the recent completion of high school education, which emphasizes experimental observation. The further advancement in 4th-year students is driven by the development of mental imagery, allowing them to represent micro-level chemical concepts through symbols. Ultimately, the graduates' peak performance stems from their ability to integrate theoretical knowledge with practical teaching experience using the connection of the chemical representation, which significantly enhances relational understanding.

Keywords: Chemical Literacy Levels