

## **Integrations of the Instructional System Design for Students Learning Achievement Motives and Science Attitudes with Stem Educational Model on Stoichiometry Issue in Chemistry Classes with Different Genders**

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**Abstract :** This research study was to investigate of education decisions must be made which a part of it should be passed on to future generations as obligatory for all members of a chemistry class for students who will prepare themselves for a special position. The descriptions of instructional design were provided and the recent criticisms are discussed. This research study to an outline of an integrative framework for the description of information and the instructional design model give structure to negotiate a semblance of conscious understanding. The aims of this study are to describe the instructional design model for comparisons between students' genders of their effects on STEM educational learning achievement motives to their science attitudes and logical thinking abilities with a sample size of 18 students at the 11th grade level with the cluster random sampling technique in Mahawichanukul School were designed. The chemistry learning environment was administered with the STEM education method. To build up the 5-instrument lesson instructional plan issues were instructed innovations, the 30-item Logical Thinking Test (LTT) on 5 scales, namely; Inference, Recognition of Assumptions, Deduction, Interpretation and Evaluation scales was used. Students' responses of their perceptions with the Test Of Chemistry-Related Attitude (TOCRA) were assessed of their attitude in science toward chemistry. The validity from Index Objective Congruence value (IOC) checked by five expert specialist educator in two chemistry classroom targets in STEM education, the E1/E2 process were equaled evidence of 84.05/81.42 which results based on criteria are higher than of 80/80 standard level with the IOC from the expert educators. Comparisons between students' learning achievement motives with STEM educational model on stoichiometry issue in chemistry classes with different genders were differentiated at evidence level of .05, significantly. Associations between students' learning achievement motives on their posttest outcomes and logical thinking abilities, the predictive efficiency (R<sup>2</sup>) values indicate that 69% and 70% of the variances in different male and female student groups of their logical thinking abilities. The predictive efficiency (R<sup>2</sup>) values indicate that 73%; and 74% of the variances in different male and female student groups of their science attitudes toward chemistry were associated. Statistically significant on students' perceptions of their chemistry learning classroom environment and their science attitude toward chemistry when using the MCI and TOCRA, the predictive efficiency (R<sup>2</sup>) values indicated that 72% and 74% of the variances in different male and female student groups of their chemistry classroom climate, consequently. Suggestions that supporting chemistry or science teachers from science, technology, engineering and mathematics (STEM) in addressing complex teaching and learning issues related instructional design to develop, teach, and assess traditional are important strategies with a focus on STEM education instructional method.

**Keywords :** development, the instructional design model, students learning achievement motives, science attitudes with STEM educational model, stoichiometry issue, chemistry classes, genders

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