

## The Analysis of SMT Teachers' Self-Efficacy towards Enhancing Student Thinking and Problem-Solving Skills: Preliminary Study

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### Abstract

**Purpose** - This preliminary study aimed to investigate teacher self-efficacy over a one-year period under a project called “Professional development to enhance student thinking and problem-solving skills.” Teachers’ self-efficacy was focused due to the fact that personal belief in one’s capabilities to complete tasks or achieve goals or self-efficacy influences their practice.

**Method** - Ninety-five teachers from science, mathematics and technology (or SMT) teachers completed a Google form on the five-point Likert scale for self-efficacy scale, with Cronbach’s alpha of 0.95. The form was comprised of 29 statements asking for basic information as well as perceived self-efficacy in teaching student thinking and problem-solving skills. Data was collected at the beginning of the project and analysed by descriptive statistics with multiple regression to find relations among variables as well as one-way analysis of variance (ANOVA).

**Findings** – Results showed that there was no statistical difference ( $F$  value = 1.80,  $F_{crit} = 3.10$ ) among Science ( $M = 3.50$ ), Math ( $M = 3.69$ ) and Technology ( $M = 3.76$ ) teachers perceived their self-efficacy. The result of regression analysis illustrated that only beneficial current practices of teachers had relations to the teachers’ self-efficacy, while others had no relation to self-efficacy ( $R = 0.30$ ,  $R^2 = 0.10$ ). Finally, most average scores for the beneficial current practices of the SMT teachers were at the moderate levels. Only the average scores of beneficial current practice of primary science teachers and secondary technology teachers were at the high levels.

**Significance** – This survey covered a number of aspects of teachers’ belief and practice to promoting students’ thinking and problem-solving skills. The article purposely highlighted certain crucial issues that would be used to inform educators rethink ways to better address participants’ efficacy in the future professional development courses.

**Keywords:** Professional development, Self-efficacy, Thinking skills, Problem solving, Thailand