**Understanding the Gender Differences in Aspirations of Learning STEM career**

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This study explores the significant predictor by gender differences of Indonesian senior high school students’ aspirations in learning STEM career. This is a survey study with three instruments: motivation, environment, and students’ aspiration in STEM career. Questionnaires survey, data were collected from 119 students (47 male, 72 female) aged 15-19 from various high schools across Indonesia. Data collection included surveys to assess students' aspirations towards STEM careers and related factors such as expectancy of success, control beliefs, self-efficacy, activities inside and outside the classroom, and social influences. Statistical analyses included descriptive statistics, t-tests for group comparisons, and regression analyses to identify predictors of STEM aspirations.

The findings align with social cognitive theory, indicating that students' beliefs about their abilities (self-efficacy) and their control over their future (control beliefs) significantly influence their aspirations towards STEM careers. Additionally, environmental factors, particularly activities outside the classroom and media influences, play a crucial role, especially for female students. These findings contribute to our understanding of how gender-specific factors shape career aspirations in STEM fields among high school students, highlighting the importance of tailored educational interventions and support mechanisms.

**Keywords:** Gender Differences, STEM Careers, Indonesian Students, Motivation Factor, Environmental Factor, Students Aspirations.