

# **Measuring stem teaching practices among Malaysian science, mathematics and design, and technology teachers**

## **ABSTRACT**

This study measures the level of application of STEM teaching practices among Malaysian science, mathematics, design, and technology teachers. The STEM teaching practices are categorized into four components- the six primary elements outlined in the Framework of STEM Integration in the Classroom, nature of STEM disciplines, approaches to teaching STEM disciplines, and twenty-first-century skills. STEM teaching practices are exhibited when the subject matter teachers execute cross-disciplinary STEM teaching in the classroom. The four components of practices measured through this study are inevitable to effectively implement cross-disciplinary teaching and enhance students' learning experience. This study used a cross-section survey design to gauge STEM teachers' teaching practices. For this purpose, a questionnaire consisting of 61 items was administered to the 300 primary and secondary STEM teachers identified using a random sampling method. The questionnaire had two sections: Section 1 contained 11 demographic items, and Section 2 had 50 items that used 5 points Likert scale to measure the practices. The findings reveal that STEM teachers apply the key elements of STEM Integration at a moderate level. The teachers exhibited low-level application of the nature of STEM disciplines. The teachers, on the contrary, exhibited high-level applications of STEM integration approaches and skills. The findings of this study can be the yardstick for measuring teachers' STEM teaching practices. This study also facilitates the curriculum developers and stakeholders to understand the level of STEM teaching practices of teachers and to accommodate them with necessary professional development programs.