



Technological Pedagogical Content Knowledge (TPACK) and the Teaching of Science: Determiners for Professional Development

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ABSTRACT

The study investigates how Science teachers articulate their self-confidence in teaching Science with technology. Technological Pedagogical Content Knowledge (TPACK) is used as the primary tool to describe their practice. Using a quantitative approach, with an initial survey of 408 science teachers from 59 secondary schools in a state in East Malaysia, descriptive and inferential statistics were conducted to assess science teachers' level of TPACK and discriminate differences between perceptions on TPACK related to their teaching experience. Findings revealed that the level of Content Knowledge (CK), Pedagogical Knowledge (PK), Technological Knowledge (TK) and Pedagogical Content Knowledge (PCK) are high, in comparison to their Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK) and Technological Pedagogical Content Knowledge (TPACK) which were recorded at a moderate level. The study also found how teachers with more extensive experience teaching reported higher confidence with their CK, PK and PCK. Novice teachers indicated slightly higher confidence in their TK. The study provides a set of determiners for professional development opportunities for Sarawak Science teachers to upskill their knowledge to integrate science content, pedagogy, and technology.

Keywords: Science teaching, Technological Pedagogical Content Knowledge, Secondary Education

JEL Classification: C1, L2

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