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STEM Education: An examination of School leaders' and teachers' perceptions on STEM implementation in UAE Schools
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Abstract
STEM education in the UAE is currently receiving growing attention due to the massive economic growth, which created a need for STEM-qualified graduates. Accordingly, UAE educational policymakers and curriculum developers advocate the development and implementation of STEM education at all educational levels. The research emphasized that STEM education positively affects students' ability to solve problems, be innovative, think critically, and be technology literate. This study aims to examine school leaders' and STEM teachers' perceptions of STEM implementation practices in the UAE context. A sequential explanatory, mixed-method design was employed to collect the data from the school's leaders and teachers, quantitively using a survey and qualitatively using semi-structured interviews. The sample of the quantitative phase consists of 43 STEM schools, including 19 schools in Abu-Dhabi, 19 schools in Al-Ain, and 5 schools in Al Dhafra educational region were selected purposively as they are exclusively STEM education schools. In total, 463 participants responded to the study survey representing diverse positions, gender, years of experience, etc. The participants included 421 teachers, 21 principals, and 21-unit heads. The sample of the qualitative phase involved 9 participants; 6 were teachers, and 4 of the participants represented school leaders. The findings revealed that the participants have positive perceptions of STEM meaning, value, purpose, and implementation practices. The results also indicated that there is a need for solid leadership to manage STEM implementation, preparat
ion and involvement of the stakeholders, and STEM professional development. Moreover, the study findings revealed that lack of time, heavy teaching loads, and a lack of supportive STEM school culture are factors that challenge STEM implementation. Finally, the study suggested a three-level framework for successful STEM implementation in the UAE.

Keywords: STEM Education; STEM Teachers readiness; School Readiness; Challenges; UAE