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SCIENCE TEACHERS' EMOTIONS AND THEIR ASSOCIATION WITH SECONDARY STUDENTS' ACADEMIC PERFORMANCE, BEHAVIOUR, AND PARTICIPATION IN MALAYSIAN CLASSROOM

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ABSTRACT

Emotions in the classroom can impact learning because a good bonding between teachers and students is possible when they know the importance of education. Teachers' emotions are as important as students' in reaching the goals of acquiring knowledge. The implementation of the Science curriculum has triggered mixed unpleasant emotions among teachers, who feel happiest when students benefit meaningfully from their teaching. In contrast, in between students' cognitive abilities, teachers feel happy when their students show hard work and effort. Thus, this study focuses on science teachers' emotions and their association with students' academic performance, behaviour, and participation in the classroom while comparing novice (≤5 years' experience) and senior (>5 years) teachers. It is indeed significant to identify the common emotion regulation strategies among science teachers for maximizing their personal and social well-being. To achieve these objectives, a survey of questionnaires and a semi-structured interview were administered among science teachers at secondary school in the state of Selangor. The questionnaire used includes 12 TES items and 24 items with additional items developed by the researcher to examine the influence of students' academic performance, behaviour, and participation, 10 items from the ERQ and 7 semi-structured interview questions are used. By selecting teachers who teach two different classes; high-performing and low-performing, it is then possible to see whether the differences between academic performance, behaviour, and participation among students from two distinct classes have an impact on their emotional state. Findings from surveys and semi-structured interviews found that science teachers experienced positive emotions, such as self-efficacy and satisfaction when teaching students who were actively participating, regardless of their academic performance. Also, factors like administrative workload, limited resources, and challenges in implementing HOTS within time constraints affect teachers both academically and emotionally, especially novice teachers who are still vulnerable to stress. In contrast, negative emotions reported by teachers such as frustration and helplessness were more common when teaching low-performing students when they show disruption and behavioural issues. Nevertheless, teachers felt at their lowest when burdened with administrative workload rather than teaching itself. Despite these challenges, some teachers found emotional rewards in witnessing effort and persistence among struggling students. Teachers commonly employed emotion regulation strategies such as cognitive reappraisal and expressive suppression to regulate their emotions in the classroom. This study provides an extension from previous studies where instead of focusing on curriculum or students' academic performance, this study reveals that active student participation can contribute to positive teacher emotions, while behavioural issues even though from among high-performing students lead to frustration. Another finding showed administrative workload emerged as a major contributing factor to non-teaching-related stress. This study aims to deepen the understanding of science teachers' emotions, examine student-related influences, explore emotion regulation strategies, and provide practical insights through qualitative findings.

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CHAPTER 1
INTRODUCTION

1.1 Research Background

Globally, high-performing education systems such as Singapore, Finland, and South Korea have proven that science education outcomes can be significantly improved by having strong teacher preparation, adequate resources, and supportive policies. These countries not only prioritize curriculum reforms but also prioritize teacher well-being, recognising that teachers' emotions directly impact classroom engagement and students' academic achievement. Affirmative teachers' emotions are associated to enhanced motivation and active participation, while negative emotions can inhibit learning and lead to fatigue.

In Malaysia, science is a core subject throughout Year 1 to Form 3, followed by specialisation in upper secondary school. Despite this early exposure, 44% of students in PISA 2018 failed to meet minimum proficiency in science, making Malaysia's performance in PISA and TIMSS remain below the international average. Additionally, the decline in STEM enrolment, with a 17.37% drop in Additional Mathematics from 2018 to 2023 is also indicating a trend that directly threatens Malaysia's future science and technology workforce (The Star, 2024). These include inadequate teacher training and exposure to STEM, lack of facilities and resources, heavy workloads, and time constraints (Ismail et al., 2019). What is even more concerning is, the number of Sijil Pelajaran Malaysia (SPM) students taking science and mathematics subjects has been declining for the past six years, according to Science, Technology and Innovation Minister Chang Lih Kang.

Several factors contribute to these challenges: inadequate teacher training in STEM pedagogies, resource limitations (most notably in rural schools), heavy administrative workloads, and difficulty implementing higher-order thinking abilities within time limitations. These issues have both academic and emotional repercussions for teachers, particularly science teachers who must manage intricate subject matter alongside classroom discipline (Kartini et al., 2022). On top of that, PISA in 2018 proved that students in Malaysia are among those who fall behind compared to other East Asian countries. The PISA results revealed significant performance disparities