

UNIVERSITI TEKNOLOGI MARA

**THE EFFECTIVENESS OF
NON-FORMAL SCIENCE LEARNING
BETWEEN SERVICE EXPERIENCE
AND VISITOR'S RESPONSE AT
THE NATIONAL SCIENCE CENTRE
KUALA LUMPUR**

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ABSTRACT

The National Policy on Science, Technology & Innovation (NPSTI 2021-2030) highlights the critical role of the National Science Centre (NSC) as the centre of excellence for science popularisation in the country, under its Thrust Strategic 5 - strengthening STI enculturation and application for the Malaysian society. It is alarming that Malaysia's public's average knowledge level of Science, Technology & Innovation (STI) hovered below 50% for the past 16 years, with less than 2% of Malaysians' participation in the government's STI awareness programs and policies, and less than 1.9% visited the science centre yearly. This quantitative study clarified the effectiveness of Non-Formal Science Learning (NFSL) as the mediator between the visitor's service experience (VSE) and the visitor's responses (VR), which influence the visitor's approach-avoidance behavioural at the NSC. This study applied the cross-sectional survey with purposive sampling technique using a self-administered questionnaire. A usable 490 samples were cleaned and assumed through the preliminary statistical consideration with SPSS before further analysis was performed with the SmartPLS-SEM for the measurement and structural model assessments. The results showed that most respondents ranked the NFSL's effectiveness and VR at the highest level. The SmartPLS-SEM assessments revealed a robust explanatory power ($R^2 > 0.75$), with large prediction relevance ($Q^2 > 0.5$), of the IVs towards the DV, indicating a substantial explanatory framework. The bootstrapping and pathways analysis showed that eight out of eleven VSE's factors were statistically significant in affecting the VR, except for the technology usage, layout & design, and sign & symbol factors. The mediation interactions of NFSL's effectiveness exist in the pathways involving eight factors: timeliness, accessibility, fair treatment, exhibition outcome, ambient, employees, density (crowd), and displayed emotion of others. Furthermore, the exhibition outcome was found to be the most influencing VSE's factor affecting the pathways. The findings provided empirical supports on the underpinning Environmental Psychology Theory - SOR through the holistic stimulus exposure (the VSE's factors) that affect the organism's behavioural response (the VR) with NFSL's effectiveness as the mediator. Furthermore, this study extended the Service Experience Model by broadening its influencing dimensions with additional significant factors involving service delivery and the social servicescape component in a science centre setting. This study also illustrates a potential framework for NPSTI policy execution in STI enculturation and popularisation through the NSC as the mandated NFSL institution in the country. The NSC should reinvent its VSE approaches and focus on proactive and innovative ways to attract audiences both locally and globally through virtual platforms, including its exhibition, educational programs, and festivals.

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