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Learning through Play: Fostering STEM Skills through Hands-On Activities, Kits, and Board Games

Jennifer L B Martay[1], Sarinova Simanjuntak[2]
Anglia Ruskin University, UK

Abstract

Careers within (S)cience, (T)echnology, (E)ngineering, and (M)athematics areas have long been sought after, likely due to relatively higher salaries and lower unemployment rates. STEM careers will remain vital to our future, with the UK Government projecting 1.9 million STEM professionals needed by 2035. We need to cultivate these STEM skills in our children now, to prepare them for future STEM careers. Our goal is to suggest fun, interactive, and cost-effective ways to develop these STEM skills in children. We have created leaflets/guidance suggesting STEM activities, kits, and games that schools, parents, and Home Education communities can use to teach STEM skills. There are 4 leaflets for 4 different age groups: babies/toddlers (0-3 years), preschool (3-6 years), primary/elementary school (6-11 years), and secondary school (11-16 years). Each leaflet has S, T, E, and M-specific suggestions. For example, there is a section suggesting activities to teach (E)ngineering to secondary school students. We distributed our leaflets at our local science festival, where we displayed examples of kits and board games for parents and children to try out. With over 100 families in attendance, feedback was very positive, with multiple people requesting to forward the leaflets onto new communities. Advertisement through social media helped specifically target Home Education groups and board game communities. Furthermore, our 2023 Teachers' Training Project in Indonesia (funded by the British Council Going Global Partnership) successfully introduced a cultural-based Game Based Learning module for STEM teaching and learning of early childhood and primary school children.

Keywords: Elementary Education; Gamification; Home Education; Primary Education; Secondary Education