

# Game-based learning to teach Higher Order thinking in Rural Schools: Case studies in Sarawak Borneo

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**Abstract.** This action research utilised game-based learning principles in rural schools in Sarawak. Game design thinking was proposed as a pedagogical approach to guide teachers to address Higher Order thinking skills in subjects they teach, a requirement in the current national curriculum. Due to the lack of resources, facilities and training commonly faced by rural schools, the initiative was necessary to measure the feasibility of the approach for learning. The study also observed the similarities and differences in local cultural protocols as they differ by location, and adjustments were made to the presentation of Game Design thinking to accommodate community expectations and support. The study proposes a CreativeCulture model, an instructional approach which accommodates inclusive needs of indigenous communities in Sarawak, both within and beyond their local schools.

**Keywords:** play, game-based learning, game design thinking, cultural protocol.

## 1 Introduction

Play is universal, and so is learning. The contention to play and learn is to get involved, and if luck has it, succeed. Design thinking is a cognitive approach to examine options, strategies and resources one has to construct new ideas and experiences. With design thinking, the process to build becomes tangible as each phase is dissected to inform and prod for more cognitive and affective responses to take place. Design thinking enables an opportunity to create a learning environment which considers a responsive approach to how learners engage with learning content. In this study, games are used as a tool to engage in Design Thinking. A pedagogical approach is introduced to provide a playful connection to the learning experience. In this study, Game design thinking was presented to teachers of rural schools in Sarawak. The demographic profiling of each location is unique to each, and local cultural protocols were observed, to enable the study to be implemented and to gain support from the community, parents, teachers and students.

As context, the Malaysian Education Blueprint (MEB) 2013-2025 spelt out the need to develop High Order Thinking Skills (HOTS) of students in primary and secondary education [1], and elements of higher-order thinking are expected to be