Art-Integration in Computational Thinking as an Unplugged Pedagogical Approach at A Rural Sarawak Primary School

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Abstract

Purpose – Promoting Computational Thinking (CT) in education has become an interest among scholars to develop CT skills to promote critical thinking and problem-solving skills among young people. However, it remains a challenge for Malaysian educators to teach CT at school, especially in rural primary schools. The purpose of this study is to explore the use of visual art in learning the problem-solving process and as an unplugged approach to involve learners in computational thinking.
Methodology – This study employed qualitative exploratory method to understand the use of visual art as a pedagogical tool for young learners to manifest CT. Twenty-two Primary 4 and Primary 5 students, aged 10 to 11 years old, were chosen as the participants of the study. The participants are from an indigenous community of Sarawak Penan, who used to be nomadic. We used on-site observation to collect qualitative data. The content analysis method was also used to examine classroom activities and participants' task outcomes.
Findings – Through the art-making experience and unplugged approach, the participants were able to Illustrate their ability to grasp essential concepts of computational thinking – abstraction, decomposition, and algorithms. The CT activities conducted were simple, manageable, and easy to understand. The findings have shown that implementing the art-integration approach in computational thinking suited the needs of the young novice rural learners. The approach was found to be accessible for the local teachers, as it eases the burden of copious preparation and implementation. The approach enabled the teachers to overcome common comprehension problems when relating new foreign concepts to young learners staying in remote rural regions. During the drawing activity, researchers have observed that male students performed better in drawing and abstraction skills, while female students performed better in recognising patterns and colours.