Wonder Zone
Improving Children's Level of Engagement in STREAM activities Through Play

1.0 Background

"Wonder Zone" is an outreach programme for children in the rural area of Sabah which aimed to promote STREAM (Science, Technology, Engineering, Mathematics + Arts + Literacy) among the children in order to foster their curiosity and creativity and spark their interest in learning these topics. We visited five schools to conduct this programme: SK Simbuan, SK Luagan, SK Pasir Putih, SK Bariawa Ulu and SJKC Pei Yin. There were 208 children aged 6-12-year-old who were the participants of this project and our team acted as the organizer and facilitators. We spent five hours in each school and 10 hours of preparation for each visit.

Most subjects related to STEM (Science, Technology, Engineering, Mathematics) as well as literacy are usually taught separately which children sometimes find demanding and too structured. The initiative introduced arts and literacy into STEM, hence, STREAM, in order to enable these children to connect the different subjects and become engaged in learning experience that is meaningful, fun and practical that allows them to be creative and expressive while mastering some fundamental skills. STREAM is essential to children's learning because it allows teachers to merge multiple disciplines at the same time and create learning experiences that enable children to explore, question, research, discover, and exercise innovative building skills (Colker and Simon, 2014). It prepares the children for the rapidly evolving world that requires them to be adaptive and creative where they can tackle issues and solve problems efficiently.

2.0 Outreach Programmes

These are some of the examples of the activities that were conducted in the schools we visited.

Exploding Volcano: The children had to mix certain ingredients in order to create a lava-like outpouring. This involved the element of **science** as well as **arts** since they needed to make it look like an actual volcano.

Healthy Chef: The preschool children had to use the right amounts of ingredients to make enough sandwiches for everyone in their teams. This required them to use basic skills in **mathematics** and understand the use of man-made **technology** like cutlery, chopping board and can opener.

Airplane Dart: The children made their own paper planes and attempted to make them fly through holes of different sizes on a board. This activity required **engineering** skills in designing and making paper planes that could properly fly through every hole especially the smaller holes. It also involved the concept of **physics** and understanding of how paper plane works as a **technology.**

Dreamcatcher: The children created their own dreamcatcher, a decorative hoop usually hung atop a crib for infants. This activity had the elements of **arts**.

Think Tales: The children listened to stories related to our indigenous cultures (e.g. Bajau, Dusun) before they wrote their own stories that they wanted to tell others about. This had the element of **literacy** as reading and writing skills were required.

3.0 Discovery

The responses that the children wrote on their exit cards after the programme were analyzed and categorized into several relevant themes. These were our main findings.

2.1 Anticipation for the Outcome of the Task

The children were curious and eager to find out what would happen when they completed the activities. The anticipation for the end result of the activities kept them motivated and engaged.

2.2 Expectation on Different Outcomes

The children were wondering on the possibilities of getting different results if the activities were done with slight changes in procedure, materials time or place. The learning became more meaningful to them when they were able to take control of the tasks.

2.3 Engagement in Creative Task

It was discovered that the children became more engaged in activities that involved drawing, designing and building something. It was apparent that they loved these activities most and this might be due to the fact that they were performing several cognitive operations and motor skills which allowed them to be creative.

4.0 Elements of SDGs

(a) Quality Education

- We would like to ensure that the children were able to express their creativity, feelings and thoughts while acquiring fundamental understanding and skills of the different disciplines.
- The teachers expressed their interest in using some of our materials which we made available for free downloads on teacher websites.

(b) Gender Equality

- We would like to expose more girls at much younger age to activities related to disciplines that were considered male-dominated.

Woz
The mascot of Wonder Zone

5.0 Partnership & Recognition

Our project received a grant worth RM 2000 from Yayasan Peneraju and we have been working together with Sabah English Association (SEAS).