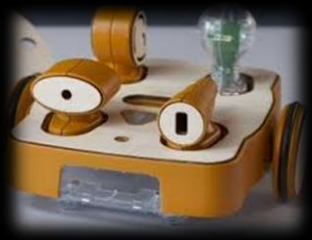
# Thinker Tinker Little Stars: PlayMaker Pilot Study

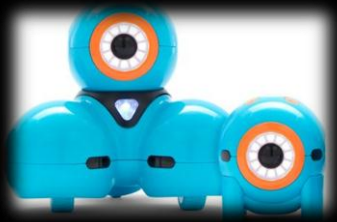
A Collaboration between IDA and

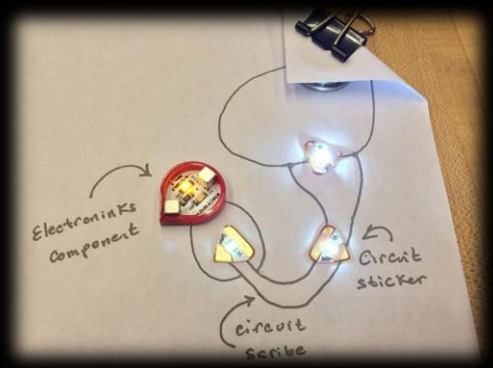
Preschool Learning academy

January to March 2015



# Introduction



# What Is The Study About?

This study examines a sample scope for learning using technology as a platform for preschoolers. Partnering with IDA who provided the technology, we began a

*3 month pilot study with the Kindergarten classes (K1 and K2) during Term 1, 2015.*

# Why Did We Embark On This?

PLAY adopted this project to investigate whether technology, served as a tool for driving further learning and deepening problem solving skills with the pedagogy as a platform.

We wanted to study if the educational toys provided an avenue for

greater challenge and applying learning about technology in a naturalistic and meaningful way, with integration and application of concepts learnt, *particularly in the group of preschoolers at PLAY.*

# What You Will Take Away

You will find:

- *A deeper integration of technology into lessons and learning environment*
- *Play based learning evident as a fundamental explorative process*
- *Extending learning beyond the classroom as educators*
- *A deeper sense of marvel at the way things work and the world around us*
- *Problem solving presented in a different dimension*

# PlayMaking!

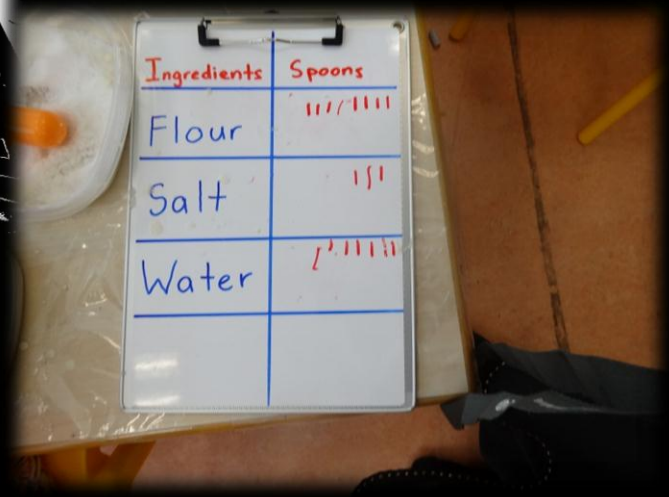
Combining the two, we investigate if the combined pedagogy engages children in deep explorations of concepts and tools of the world,

an example of which is technology- an essential and integrated part of our daily lives this age.

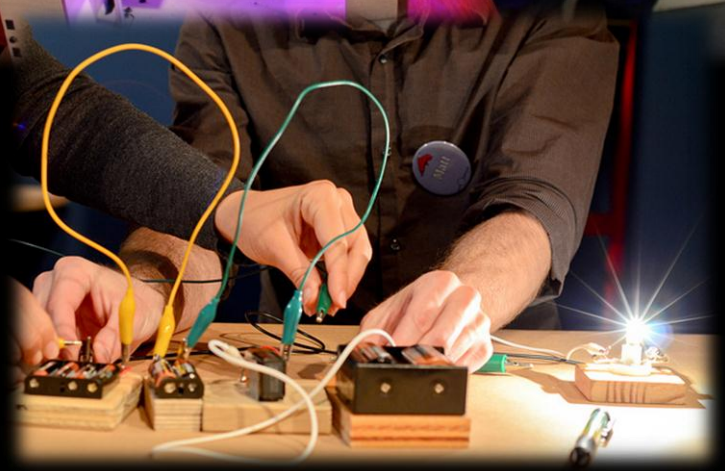
PlayMaking as a integrated pedagogy of maker centered learning and play based learning.

Our investigation: Is this pedagogy age and developmentally appropriate for preschoolers?

# Play experiences…


Ingredients
Spoons
Flour
Salt
Water

# Maker movement around the world…

# PlayMaking

PlayMaking

*Further unlocking*

*dimensions of learning*

Play based learning

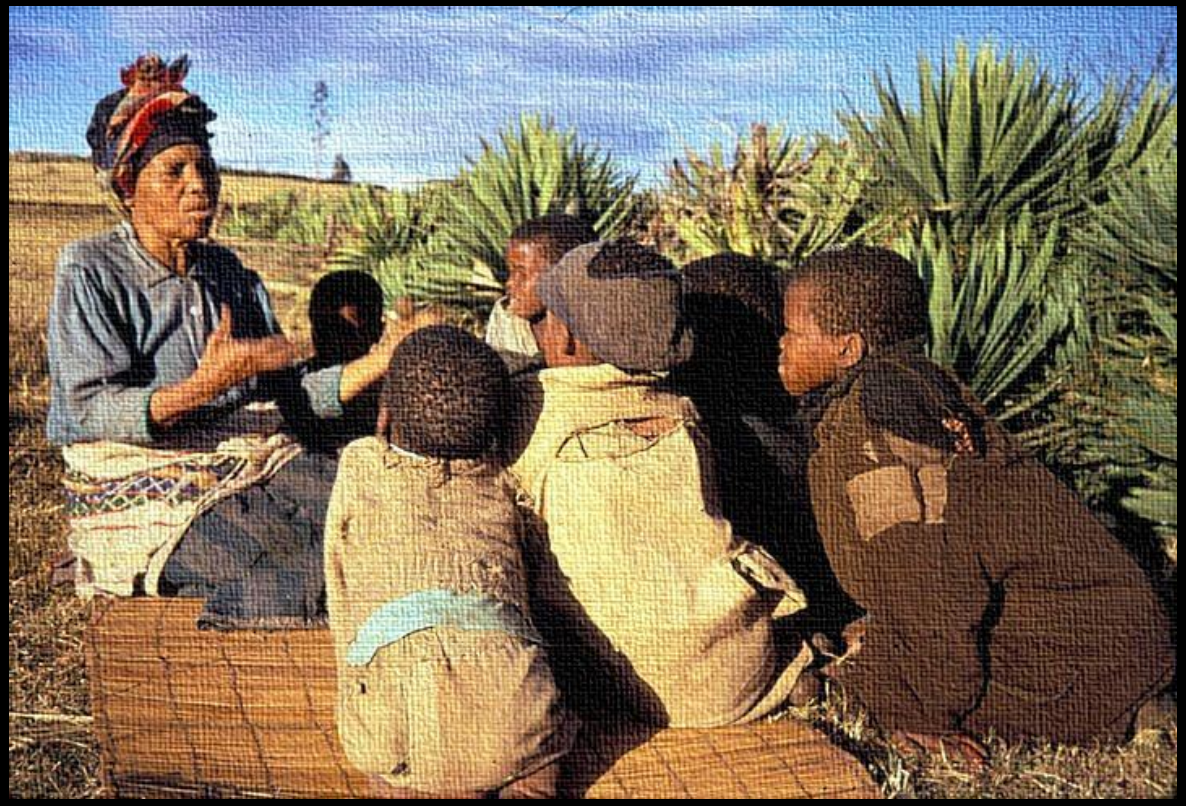
Maker centered

learning

# PlayMaking experiences!

# Introduction

## The Maasai boy and the lion
## Adapted and retold



How it all began..

# Our Objectives- Training Staff

Left: PLAY's team getting to know more about the robots

Above: Programming mission!

Right: Small group discussions and experimentation

# Research findings

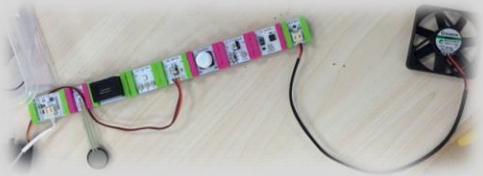
# Voices from children

**"Because the lights are very special and it glow through the paper. But it needs batteries. The batteries is to make sure that the light stays there or else the lights will go off."**

***-- K1 child***

**"When I do the tape part, it's very hard. Sometimes it go out of shape … still working and sometimes the tape goes very in, very squeezy. "**

***-- K2 child***



**"Because my friend Jia Le made a traffic lights with Little Bits. He cut the hole and put inside it. "**

***-- K1 child***

**"With the ipad it is difficult, but when it is by itself, it is something that is easy to make, that is easy."**

***-- K1 child***

# Voices from children

**"With a light walking around Ken's house and making the lion not go in. Kibo will chase the lions away. "**

**-- *K2 child***

**"I like Dash because it plays the xylophone… Twinkle twinkle little Star. It's my favourite."**

**-- *K2 child***

**"He's very a master at RT. And he even put far away and put a lot a lot of ice walls and crates. That's like expert level. It's level 41… Ying Jie set up two levels."**

***-- K2 child***

**"It was very very very hard for the stone walls but for the ice walls, it was just a bit. We pass a bit and can pass. I couldn't even find it how to even pass it. "**

***-- K2 child***

# A range of learning experiences during the POC

# BeeBot

## Dispositions

Tenacity
Empathy
Marvel
Accountability
Reflectiveness
Enterprise
Kindness

# How and what we learnt

Children explored with the BeeBot toy on their own

Small groups given a BeeBot toy to work with

Opportunities to problem solve independently, work with others, share ideas and encourage team members

Teacher discussed BeeBot in a large group setting

Children plan and organise their instructions to move the BeeBot.

Class explored the BeeBot functions and programmed the BeeBot to move on the grid mat

Group learnt to count and sequence steps using toy

Invited the children to share their thoughts about BeeBot and its functions

Organised a BeeBot race amongst ourselves!

# Circuit Stickers

## Dispositions

- Tenacity
- Empathy
- Marvel
- Accountability
- Reflectiveness
- Enterprise
- Kindness

# Circuit Stickers

## How and what we learnt

What is Chinese New Year and what are greeting cards?

Constructing Chinese New Year cards embedded with LED lights

The concept of electricity and the materials needed to build an electric circuit were introduced gradually through large group discussions and first-hand experience with circuit materials (experimentation)

Sense of wonder and curiosity about the world

Embedding the Circuit Stickers in a Chinese New Year craft tapped on children's aesthetic skills and creative expression

Constructing the circuit within a card, some children faced difficulties in bending the copper tape at corners and implementing their design

Engaged, persevere and complete their cards according to their plans



- Designing circuits for Chinese New Year is a new way of deepening our language experience as well as discovery of the world!

# Little Bits

## Dispositions

Tenacity
Empathy
Marvel
Accountability
Reflectiveness
Enterprise
Kindness

# How and what we learnt

Investigating components of circuits- battery, light, beeper, propeller, etc. How can they help us?

Discover Little Bits on their own, with occasional guidance from the teacher. Mostly, they explored the functions of each component

When their friends faced difficulties, the children also offered help to troubleshoot the LB circuits!

Combinations of various components

Discovered that the battery is a power source and that the components could generate specific outcomes (e.g., lights, buzzing sounds, fan moving)

Integrated prior knowledge into new discoveries by lighting up a make-believe plane with the LB lights

# KIBO

## Dispositions

- Tenacity
- Empathy
- Marvel
- Accountability
- Reflectiveness
- Enterprise
- Kindness


# How and what we learnt

Children were tasked to help Ken devise a solution with the help of KIBO

Group offered many suggestions (including using fire, building traps and making friends with the lions) during a large group brainstorming session

Suggested to build a robot with moving lights to scare off the lions and this led on the introduction of the KIBO to the children

Initially, the children explored with the functions of KIBO and experienced the programming of KIBO's steps with the facilitator's help

Worked towards scanning the barcodes by themselves and progressed on to program a sequence of actions for KIBO

Programmed steps for KIBO to move around a make-believe cowshed, as an attempt to help Ken to chase away the lions

# Robot Turtles

| Dispositions |
| --- |
| Tenacity |
| Empathy |
| Marvel |
| Accountability |
| Reflectiveness |
| Enterprise |
| Kindness |

The children were first exposed to the Robot Turtle game as a class. They were then divided into small groups to program instructions to move their Robot Turtles.

Working as a group, the children practised their counting skills and learnt concepts of steps and sequencing when setting up a path for the Robot Turtle to move.

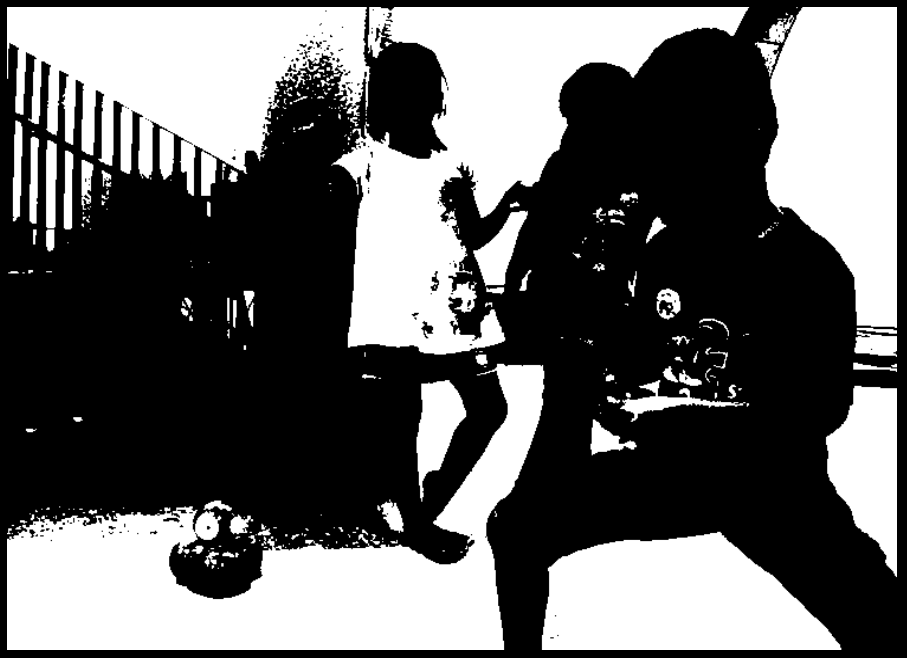
they also planned, organised and shared their ideas with each other.

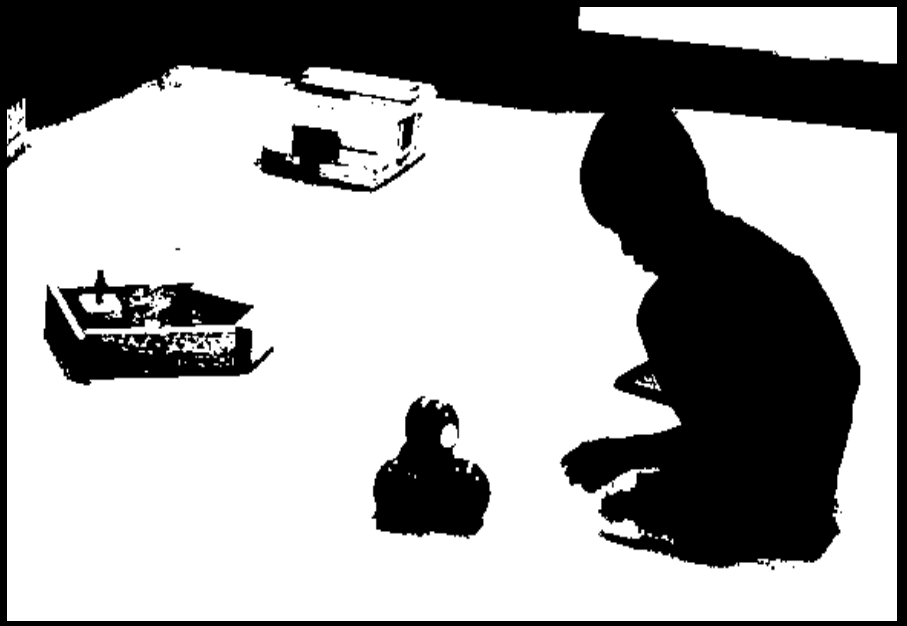
During the game, the children were engaged and often reflected upon their mistakes to achieve the correct instructions.

They also complimented and encouraged their friends who succeeded at reaching the Robot Turtles jewels.

When their instructions did not succeed, the children showed disappointment but were quick regulate their emotions and took on the challenge again.

# Dash & Dot





**Dispositions**

Tenacity
Empathy
Marvel
Accountability
Reflectiveness
Enterprise
Kindness

# How and what we learnt

Using it as an alternate robot that can be used to help Ken, the children also explored with Dash and attempted to map out a route around a make-believe cowshed to chase away the predators

Children built on their spatial awareness and were engaged even though it was difficult to map out a successful route initially.

Although some children were disappointed, they stayed engaged, reflected on their mistakes and persevered on to figure out a better route around their cowshed (problem solving)

## *A look at our CCN (Campus Care Network) Day*

Our efforts paid off on Campus Care Network (CCN) Day when we managed to raise funds through our explorations with robots!

Left: Waiting for customers patiently

Right: Collecting money for the sale of a Do-It-Yourself circuit card set- all packed by the children


Above: Selling our customised cards at office! The children worked very hard...

# Concluding the POC with IDA

Reviewing the Proof of Concept with IDA

Presenting thank you cards to IDA for their support and partnership!


for lighting up our lives! ☺