

# MAKER-BASED EDUCATION

PREPARING YOUTH FOR THE FUTURE OF WORK

By Zoe Victoria Tate



**ADB**  
**YOUTH**  
FOR ASIA

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# Introduction

1. Youth Employability
2. The Maker Movement (in Education)
3. Maker-based Education in Malaysia
4. Deep Dive: Maker-based Programme in Sabah, Malaysia
5. How to Operationalise and Scale in Southeast Asia

# Introduction



**ADB  
YOUTH  
FOR ASIA**



# Youth Employability

Youth unemployment and Youth NEETs are high in Southeast Asia

**Table 1. Snapshot of Youth Productivity in Southeast Asia<sup>1</sup>**

Country	Adult unemployment %	Multiple	Youth unemployment %	Youth NEET %
Brunei Darussalam	7.0%	4.0	28.1%	19.9%
Cambodia	.2%	2.0	.4%	12.7% (2012)
Indonesia	4.2%	3.6	15.2%	21.5%
Laos	0.7%	2.4	1.7%	42.1%
Myanmar	0.8%	2.1	1.7%	17.4%
Malaysia	3.4%	3.2	10.9%	11.7% (2016)
Philippines	2.4%	2.8	6.8%	21.7%
Singapore	2.0%	2.3	4.6%	3.9% (2016)
Thailand	1.1%	5.3	5.9%	14.9% (2016)
Vietnam	2.1%	3.3	6.9%	0.6% (2016)

# Youth Employability

Key constraints faced by youth are:

- Skills mismatch or skills constraints
- Lack of information on and understanding of job market, lack of network
- Lack of working experience, lack of assets and access to credit

A review of interventions that are aimed at improving youth employability found that *“combinations of programs are overall more effective. Increasingly, programs address several constraints at once [...] in recognition that solving one problem will not be sufficient”*

# Youth Employability

TA-9557 REG: Demonstrating Innovative Employment Solutions through Regional Knowledge-Sharing Partnerships with Youth Organizations

Youth Employment Solutions (YES) is ADB's own effort to build a roadmap of innovative projects that contribute to youth employability, spearheaded by ADB Youth for Asia

Goal: Increase employability and productivity of youth in selected DMCs – (SDG 8a) and contribute to ADB OP1.

# The Maker Movement

Fabrication machines and equipment will become equally pervasive as personal computers, and will have an equally significant effect on our global society. It will empower individuals to create problem-solving technologies on a hyperlocal level.



# Personal Fabrication





# Maker-based Education

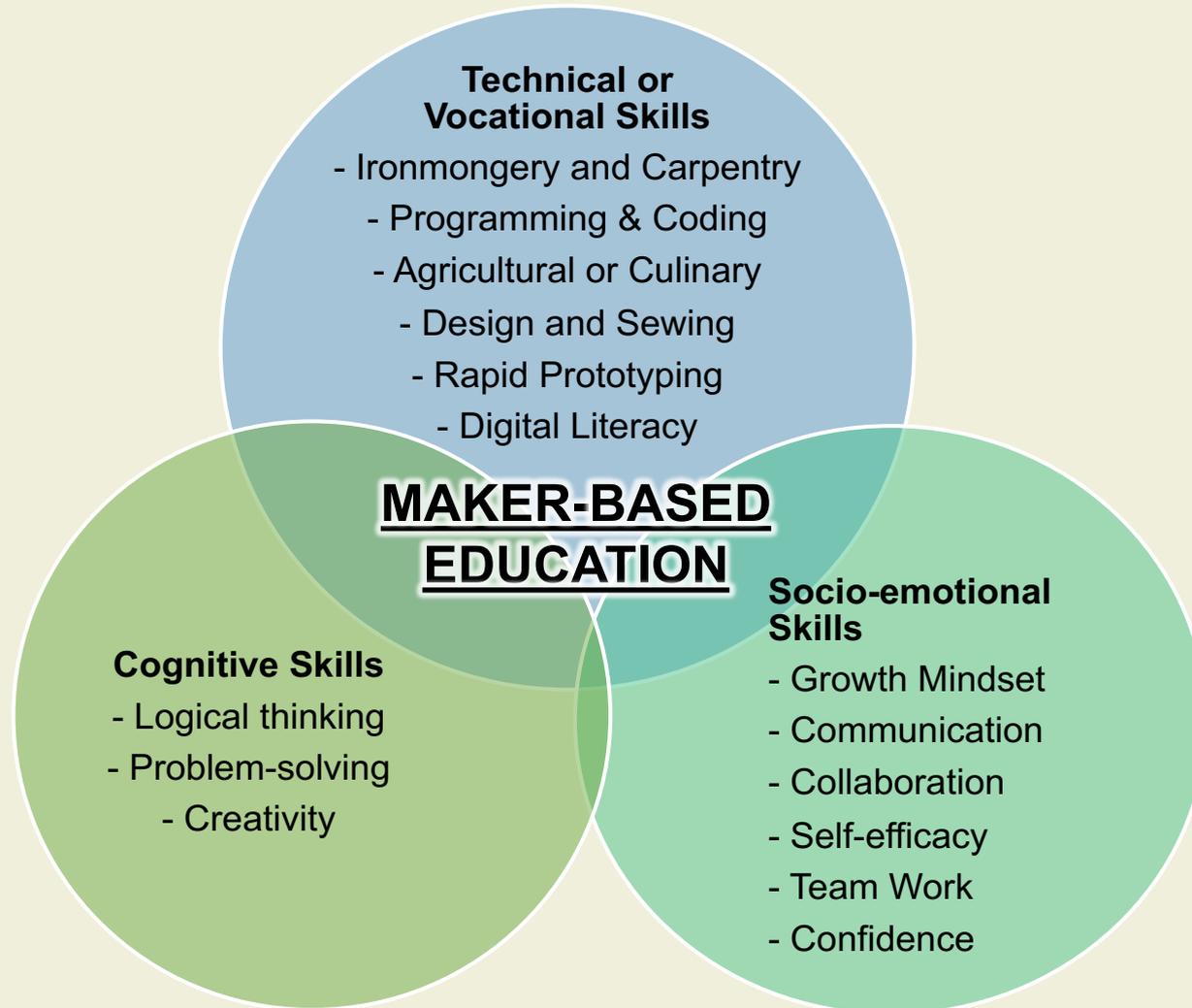
The learning outcome is to give students:

*“a sensitivity to the designed dimension of objects and systems, along with the inclination and capacity to shape one’s world through building, tinkering, re/designing, or hacking<sup>1</sup>”*



1. Project Zero Whitepaper. 2015. Maker-centered learning and the development of self: Preliminary findings of the agency by design project. Harvard Graduate School of Education, USA.

# Maker-based Education



# Maker-based Education

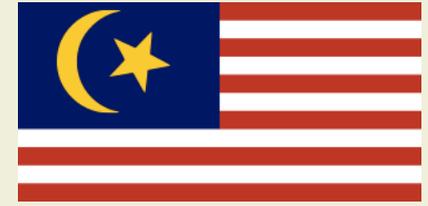


# Maker-based Education

1. With the fast-changing economy and industry, it is important that youth is committed to life-long learning and can adapt well to changes.
2. Several studies point out that socio-emotional skills are key in improving employability in the short and long term<sup>3</sup>. These include self-efficacy, perseverance, collaboration.

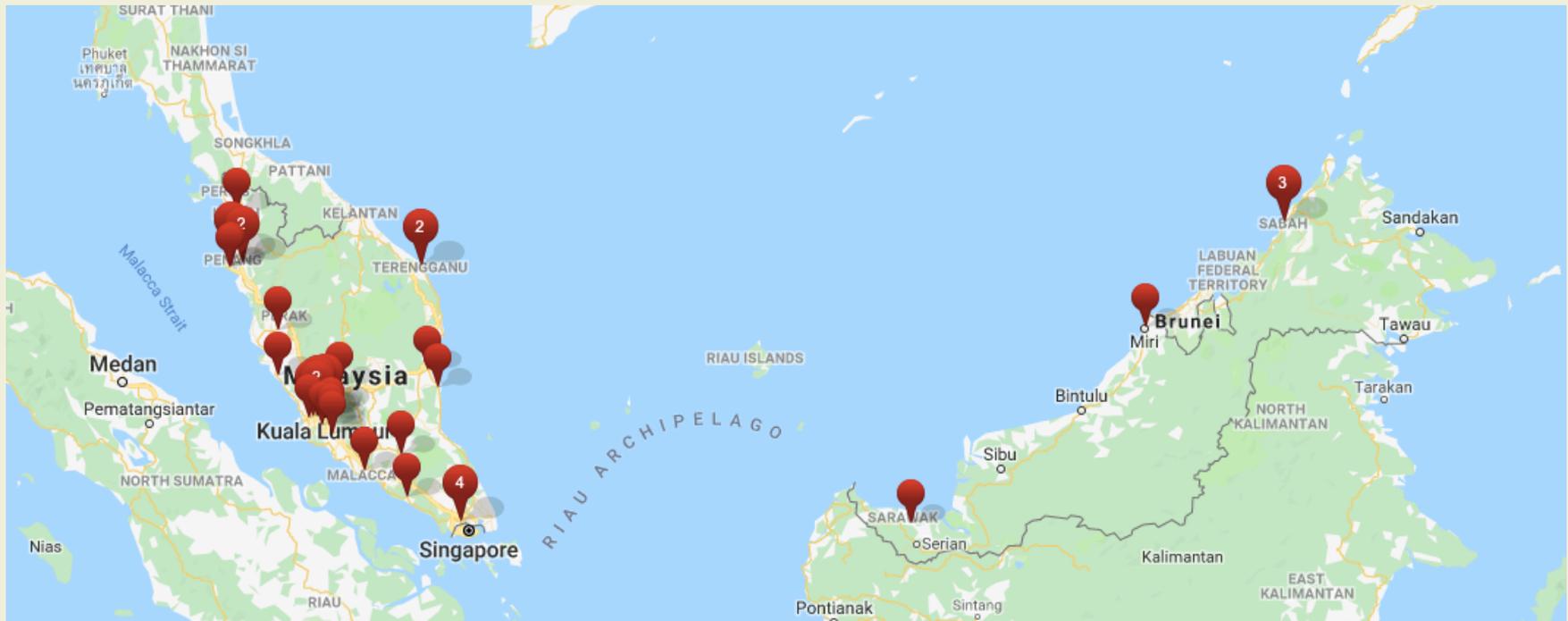
3. Guerra et al. 2014. Developing Social-Emotional Skills for the Labor Market: The PRACTICE Model. World Bank, Washington, DC.

# In Malaysia

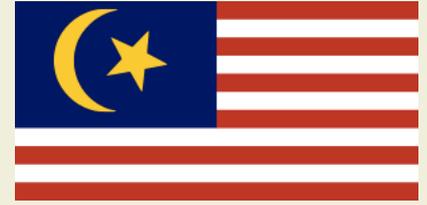


## PRIVATE SECTOR, CIVIL SOCIETY AND ACADEMIA

There are more than 50 maker-based education spaces in Malaysia



# In Malaysia



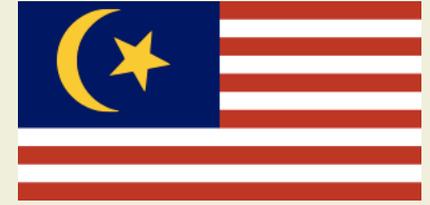
## PUBLIC SECTOR

### #mydigitalmaker

By Malaysia's Digital Economy Corporation (MDEC), in partnership with Ministry of Education (MoE), Malaysian Global Innovation and Creativity Centre (MaGIC), private sector and academic institutions.

The #mydigitalmaker project includes ten initiatives that are aimed to "transform Malaysian youth from digital users to producers" by building skills such as digital literacy, problem-solving, and creative thinking through maker-based projects.

# In Malaysia



## PUBLIC SECTOR

### Sukuk Ihsan

By Malaysia's Sovereign National Wealth Fund, Khazanah.

Issued an Islamic Bond in 2015 and 2017, fully subscribed at MYR 200M (USD 50M). The funds have been invested in educational foundation Yayasan Amir<sup>1</sup>. Yayasan Amir has a service delivery agreement with LeapEd<sup>2</sup>, who delivers the educational services to a number of trust schools under the foundation. Expected Returns are 4,2 - 4,7%

1 Founded by Ministry of Education

2 Wholly owned by Khazanah

# Maker-Based Education with Stateless Youth in Sabah, Malaysia

## OVERVIEW:

Period:	April – June 2018
Funder:	UNICEF
Partner:	Me.reka Makerspace (design, delivery)
Objective:	Increase Livelihood Opportunities
Subject:	Digital Literacy
Duration:	100 hours (over 10 weeks)
Final Project:	Crowdfunding campaign
Funds raised:	RM 75,000 (USD 18k) for each ALC

# Maker-Based Education with Stateless Youth in Sabah, Malaysia



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# Maker-Based Education with Stateless Youth in Sabah, Malaysia

## Learning Cycle 1: Google Apps Fundamentals

Lesson 1: The Digital Age

Lesson 2: The Internet and Google Search

Lesson 3: The cloud (Google Translate, Gmail and Drive)

Lesson 4: Google Docs and Google Sheets

Lesson 5: Google Slides

## Learning Cycle 2: Content Creation

Lesson 1: What is content? Audience, Marketing Strategy and Google Trends

Lesson 2: Platforms: Facebook Page, Audience Insights, Creative Hub

Lesson 3: Managing content: Strategy, Content Calendar, Feedback

## Learning Cycle 3: Multimedia

Lesson 1: Photography

Lesson 2: Photo Editing and Instagram

Lesson 3: Graphic Design (Canva)

Lesson 4: Videography

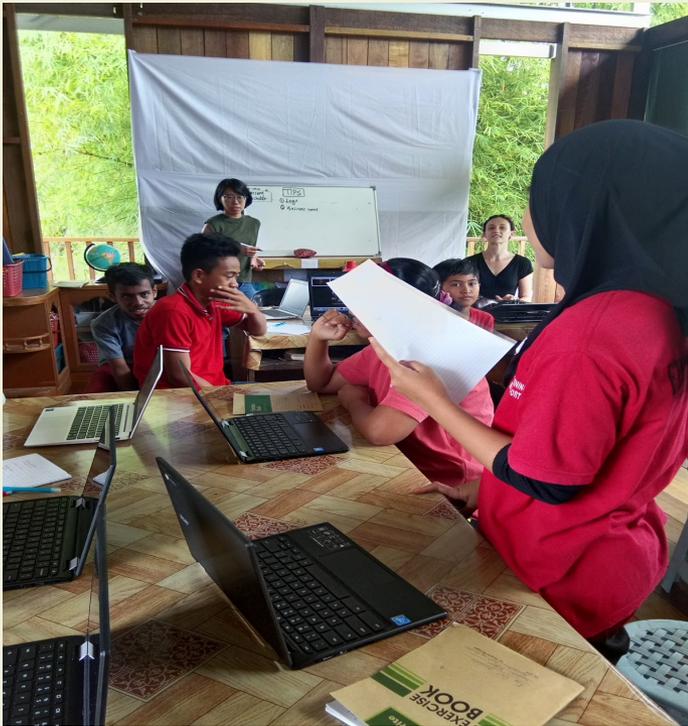
Lesson 5: Video Editing

Lesson 6: Youtube

# Maker-Based Education with Stateless Youth in Sabah, Malaysia



# Maker-Based Education with Stateless Youth in Sabah, Malaysia

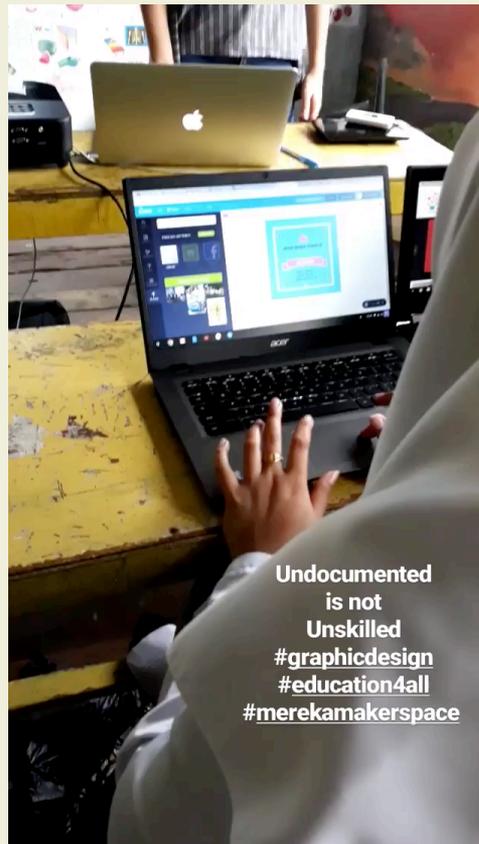


# Maker-Based Education with Stateless Youth in Sabah, Malaysia

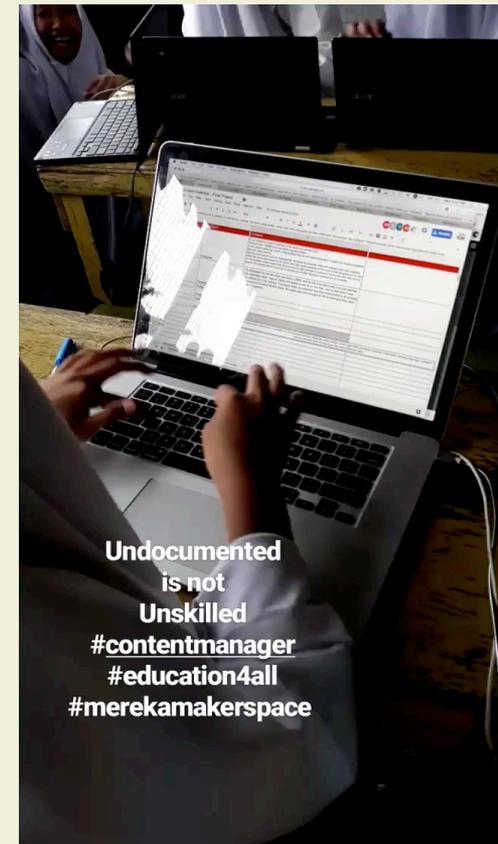
Video Editing



Graphic Design



Content Manager



# Maker-Based Education with Stateless Youth in Sabah, Malaysia

## RESULTS

Teachers' observations:

- Increased confidence
- Increased capabilities

USD 18,000 raised to upgrade infrastructure, install permanent digital hubs and buy a 2-year WIFI connection for each school

## CHALLENGES

- Translation of new skills into livelihood opportunities impossible without network or apprenticeships
- Change in political landscape (elections) has delayed the continuation of the project until 2020

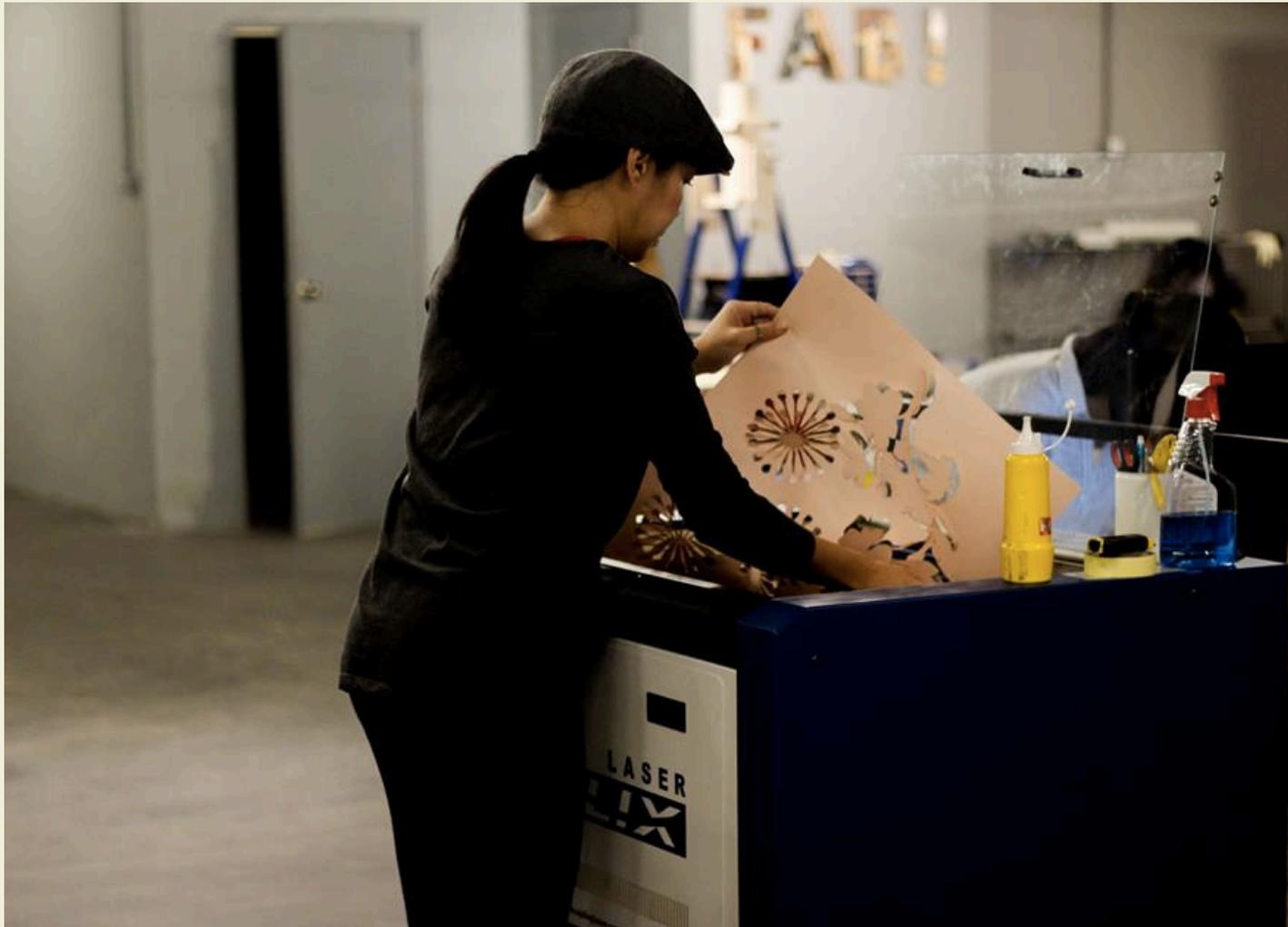
# How to run Maker-based Education?

1. Create a **functional learning space** with facilities that are aligned to the envisioned programs.
2. [optional but recommended]  
Build local collaborations with:
  - Technical experts from maker groups, Fablabs or colleges
  - Industry and business leaders
3. Create a relevant curriculum. This could be STEM-related, inquiry-based, problem-based, or project-based.
4. Leverage collaborations, technical experts, existing teachers and online content to shape the curriculum.

# How to run Maker-based Education?



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# Teachers in Maker-based Education

Maker-based Education requires a reimagination of the role of the teacher. Instead of a content expert, the teacher becomes a facilitator to the learning experience.



*“Teachers will need to focus on context mastery versus content mastery, that is, making lessons as relevant to a student’s real world as possible.”*

*“This means that teachers themselves will need to have a growth mindset and become life-long learners<sup>4</sup>”*

4. Beteille and Evans, 2019. Successful Teachers, Successful Students: Recruiting And Supporting Society’s Most Crucial Profession. World Bank.

# Teachers in Maker-based Education



# Teachers in Maker-based Education



# Teachers in Maker-based Education



# Scaling Maker-based Education

In conclusion:

1. Maker-based Education for employability is a group effort – involve students, teachers, management, local business and government
2. Maker-based Education is not difficult to set-up and deliver
3. For youth employability, building collaborations with local businesses and industry is key.
4. Teacher training and engagement is a bigger story

# Next Steps in ADB

Opportunities are:

1. Youth for Asia will work together with Project Officers:
  - To explore a demonstration project in Cambodia
  - To explore integration with a TVET project in Philippines
  - To explore future similar opportunities in Indonesia
2. A dedicated Impact Study by ERCD will help to build knowledge, best practices and evidence
3. Collaboration with the Education Sector Group to extend the concept to apprenticeships and job training
4. Further exploration of scaling mechanisms (including financing) with the Southeast Asia Regional Cooperation group

# THANK YOU

ask a question Inbox x ✓✓ x

[Redacted]

to me ▾

🗺 Indonesian ▾ > English ▾ [Translate message](#)

hi cikgu GUPREET

mengapa orang dapat ke bulan sedangkan tiada satu lubang pun di dunia.

Student Question:  
*“How can people reach the moon when there is no hole to exit the earth?”*

[Profile Icon] [Redacted] to Nuraimi ▾ Apr 21, 2018, 6:54 PM ☆ ↶ ⋮

Hey Nuraimi,

Kami ke bulan melalui langit. Tidak perlu ada lubang sedangkan tiada cangekerang di bumi. Langit kita bebas untuk ditembusi. Jika roket kami cukup kuat untuk mengatasi tarikan graviti bumi



Gambar ini menunjukkan bagaimana kami keluar dari bumi.