Capacitating Teachers and Literacy Workers vis-à-vis 21st Century Skills, Industry 4.0 and Research

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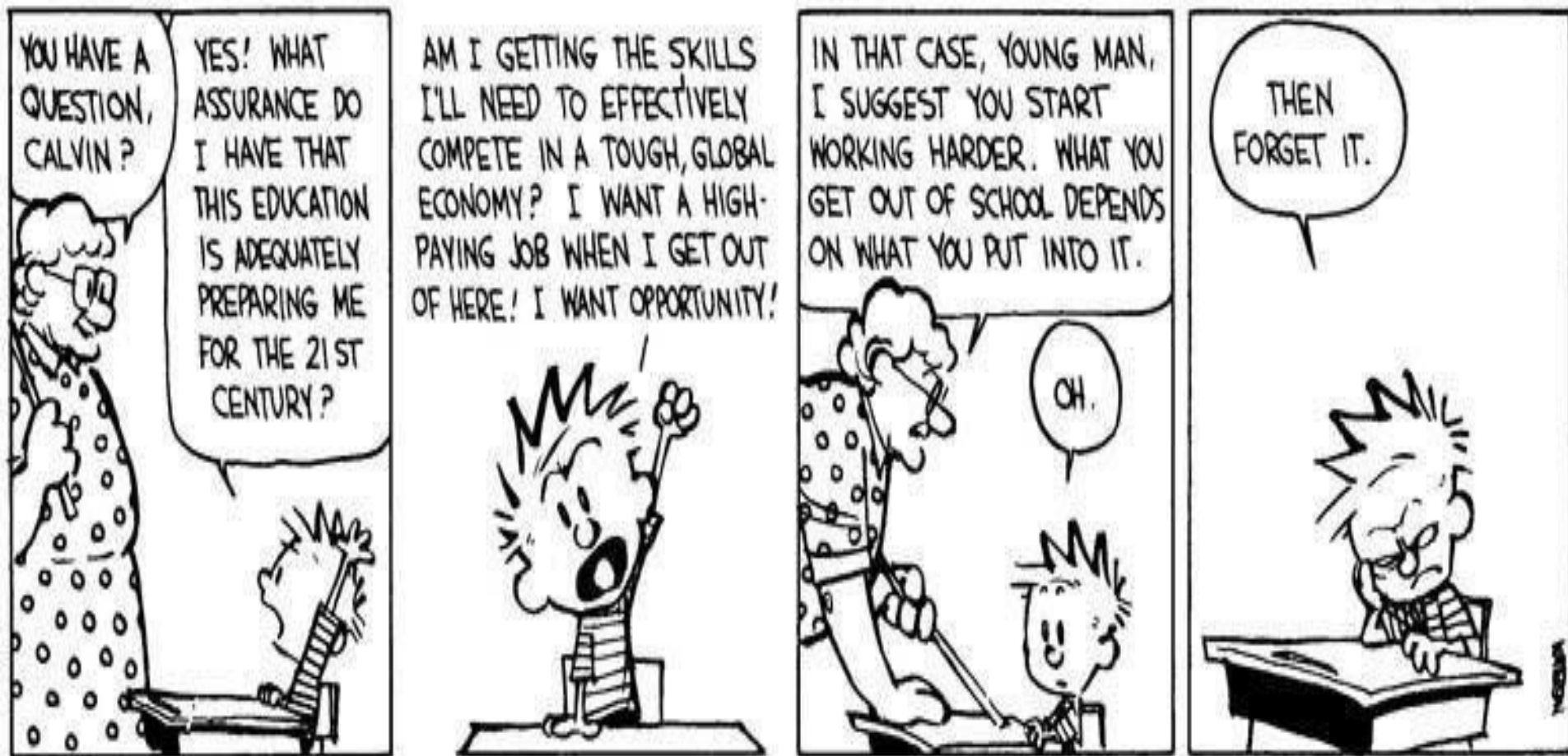
We sometimes forget how much things change over time

This is a Cargo Plane in 1956. It is transferring a 5MB IBM Hard Drive.

A 256GB iPhone is more than 51,000 times that!

21ˢᵗ century skills

What are 21st Century Skills?

Let us make a list

What is on your List?

Critical thinking
Creativity (being Innovative)
Thinking skills
Problem solving
Higher-order functioning
Literacy and Numeracy
Thinking Scientifically (using evidence)
Collaboration
Communication
Technological skills
Self direction
Problem-based learning

1. Most of these have always been necessary, in all Centuries. The difference, is that all students, or as many as possible, are expected to have these skills.

Rotherham and Willingham, *American Educator* 2010

2. Note: Problem-based learning is an issue. It can be a good idea, often used poorly and actually can impede learning.

3. Think of the Brain! To acquire skills we need to practice

On critical thinking skills

- … a fascinating review of the scientific research on how to teach critical thinking concludes that teaching generic critical thinking skills, such as logical reasoning, might be a big waste of time. Critical thinking exercises and games haven't produced long-lasting improvements for students.

- …research literature concludes that scientists are united in their belief that content knowledge is crucial to effective critical thinking..

(Thinking is dependent on what one knows.)

Getting the basics right.
Do our students read well enough?

Are these on your List?

Ability to concentrate

Deliberate practice – to apply and understand its importance

Automaticity of fundamental skills

Others:

Lower-order content knowledge (Higher-order thinking is built on a Lower-order knowledge base)

Sufficient sleep – for the brain

"… the 21st-century skills movement risks becoming another fad that ultimately changes little—or even worse, sets back the cause of creating dramatically more powerful schools for students, especially those who are under - served today."
Rotherham and Willingham, *American Educator* 2010

Did anybody say multi-tasking?

Research…shows that, in addition to slowing you down, multitasking lowers your IQ. A study at the University of London found that participants who multitasked during cognitive tasks experienced IQ score declines that were similar to what they'd expect if they had smoked marijuana or stayed up all night.

IQ drops of 15 points for multitasking men lowered their scores to the average range of an 8-year-old child.

https://www.forbes.com/sites/travisbradberry/2014/10/08/multitasking-damages-your-brain-and-career-new-studies-suggest/#3b34829856ee

Industry 4.0

What is Education 4.0?

Anywhere Anytime	Personal	Flexible Delivery
Peers and Mentors	Why/Where not What/How	Practical Application
Modular and Projects	Student Ownership	Evaluated not Examined

www.theGeniusWorks.com

https://www.thegeniusworks.com/2017/01/future-education-young-everyone-taught-together/

Making the bed vs inventing a robot

Few good points

- "Improving the so-called universal basic skills of our children, namely literacy and numeracy, is vital. They form the foundation for success in education."

- "Deep learning is not possible in a crowded curriculum."

- "Teacher education and development are crucial. Teachers will have to be prepared for implementing 21st-century education."

https://mg.co.za/article/2019-01-18-00-industry-40-is-being-taken-seriously

Teacher/Teaching 4.0?

Possible scenarios

Sensing devices to tell teachers:

- Please increase your voice volume.
- Make eye contact.
- One student is not paying attention.

Multilingual communication:

- Teacher lectures in one language; students hear information in their native language through electronic translation devices

Can I turn in a paper without citing all sources?

"No". [1]

[1] William Shakespeare, *Hamlet*, Act III, Scene I, line 96

woozapooza:

Research

Research is formalized curiosity. It is poking and prying with a purpose.

- Zora Neale Hurston

Research is to see what everybody else has seen, and to think what nobody else has thought.

- Albert Szent-Gyorgi

Different views on teachers doing research

What Professor John Hattie says:

- "Researching is a particular skill. Some of us took years to gain that skill. Asking teachers to be researchers? They are not."
- "I want to put the emphasis on teachers as evaluators of their impact. Be skilled at that. Whereas the whole research side, leave that to the academics."

He thought there was a danger that schools were trying to become too theoretical. "They are more obsessed about how they ride a bike than whether they can ride a bike well."

He suggested that every school should appoint specialists in interpreting data.

https://www.tes.com/news/leave-research-academics-john-hattie-tells-teachers

What Kevan Collins of Education Endowment Foundation (EEF) says:

- "What we need to do is build the bridges and encourage a dialogue, because researchers need teachers and obviously teachers need researchers. We have seen what happens when those two worlds don't orbit together – basically nobody gets better."

- "Just because they not then crunching the numbers does not mean they are not involved. This should be seen as a collaboration."

https://www.tes.com/news/leave-research-academics-john-hattie-tells-teachers

Research in PPST

Strand 1.2 Research-based knowledge and principles of teaching and learning	1.2.1 Demonstrate an understanding of research-based knowledge and principles of teaching and learning.	1.2.2 Use research-based knowledge and principles of teaching and learning to enhance professional practice.	1.2.3 Collaborate with colleagues in the conduct and application of research to enrich knowledge of content and pedagogy.	1.2.4 Lead colleagues in the advancement of the art and science of teaching, based on their comprehensive knowledge of content and pedagogy.

Going back to the main question:

How do we capacitate teachers and literacy workers on 21st century skills, industry 4.0 and research?

• There are many ways. (Let me offer one.)

The Philippine Professional Standards for Teachers (PPST) and similar standards for school heads and supervisors support 21st Century Skills, Industry 4.0 and Research.

Capacitate our teachers on the expectations set in PPST.

Map PD support to PPST strands and indicators.

Domain 1 Content Knowledge and Pedagogy

Strand 1.1	Content knowledge and its application within and across curriculum areas
Strand 1.2	Research-based knowledge and principles of teaching and learning
Strand 1.3	Positive use of ICT
Strand 1.4	Strategies for promoting literacy and numeracy
Strand 1.5	Strategies for developing critical and creative thinking, as well as other higher-order thinking skills
Strand 1.6	Mother Tongue, Filipino and English in teaching and learning
Strand 1.7	Classroom communication strategies

Professional Development Framework

Career Progression

Career Stage 1

Career Stage 2

Career Stage 3

Career Stage 4

Promotion, Rewards, Compensation

NEAP (provided/endorsed)
PD programs/courses

PD programs for teachers should: (i) have research evidence; and (ii) be mapped to the PPST.

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Embed PPST in the system. Align PD interventions and HR systems

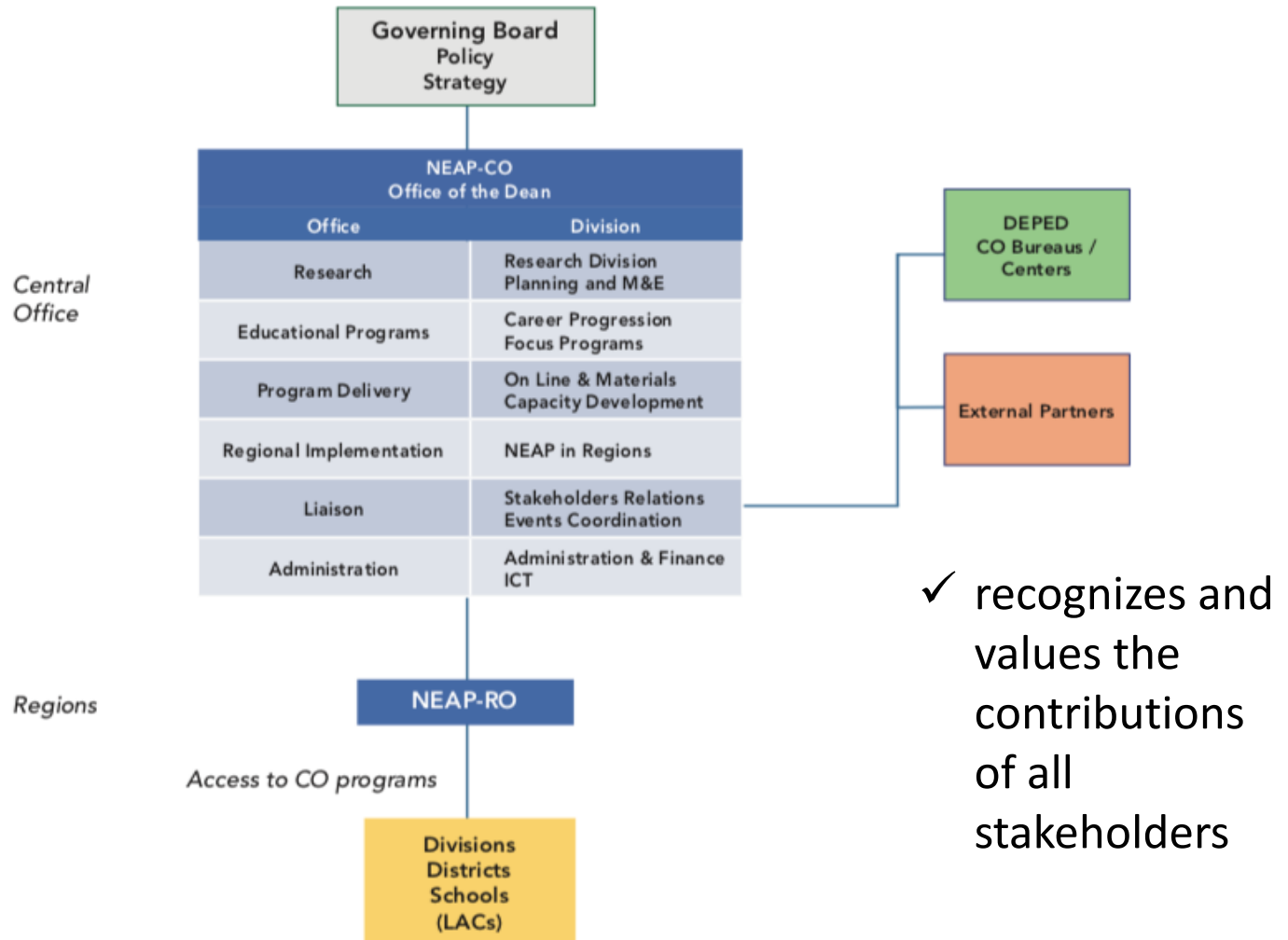Recruitment, Selection, Placement and Induction

Other HR Systems

Performance Management

L&D

Rewards and Recognition

NEAP Professional Learning Ecosystem

Engage stakeholders.

Governing Board
Policy
Strategy

NEAP-CO
Office of the Dean

Central Office

Office	Division
Research	Research Division Planning and M&E
Educational Programs	Career Progression Focus Programs
Program Delivery	On Line & Materials Capacity Development
Regional Implementation	NEAP in Regions
Liaison	Stakeholders Relations Events Coordination
Administration	Administration & Finance ICT

DEPED
CO Bureaus / Centers

External Partners

Regions

NEAP-RO

Access to CO programs

Divisions
Districts
Schools
(LACs)

✓ recognizes and values the contributions of all stakeholders

Last few slides….

Philippines Economic Update

- Rapid technological advances are increasingly making **human capital**—knowledge, skills, and good health— **essential to a country's economic success**.

- Human capital is a **critical driver of both economic growth and inclusion** (p.47).

PHILIPPINES ECONOMIC UPDATE

SAFEGUARDING STABILITY INVESTING IN THE FILIPINO

APRIL 2019

4P's

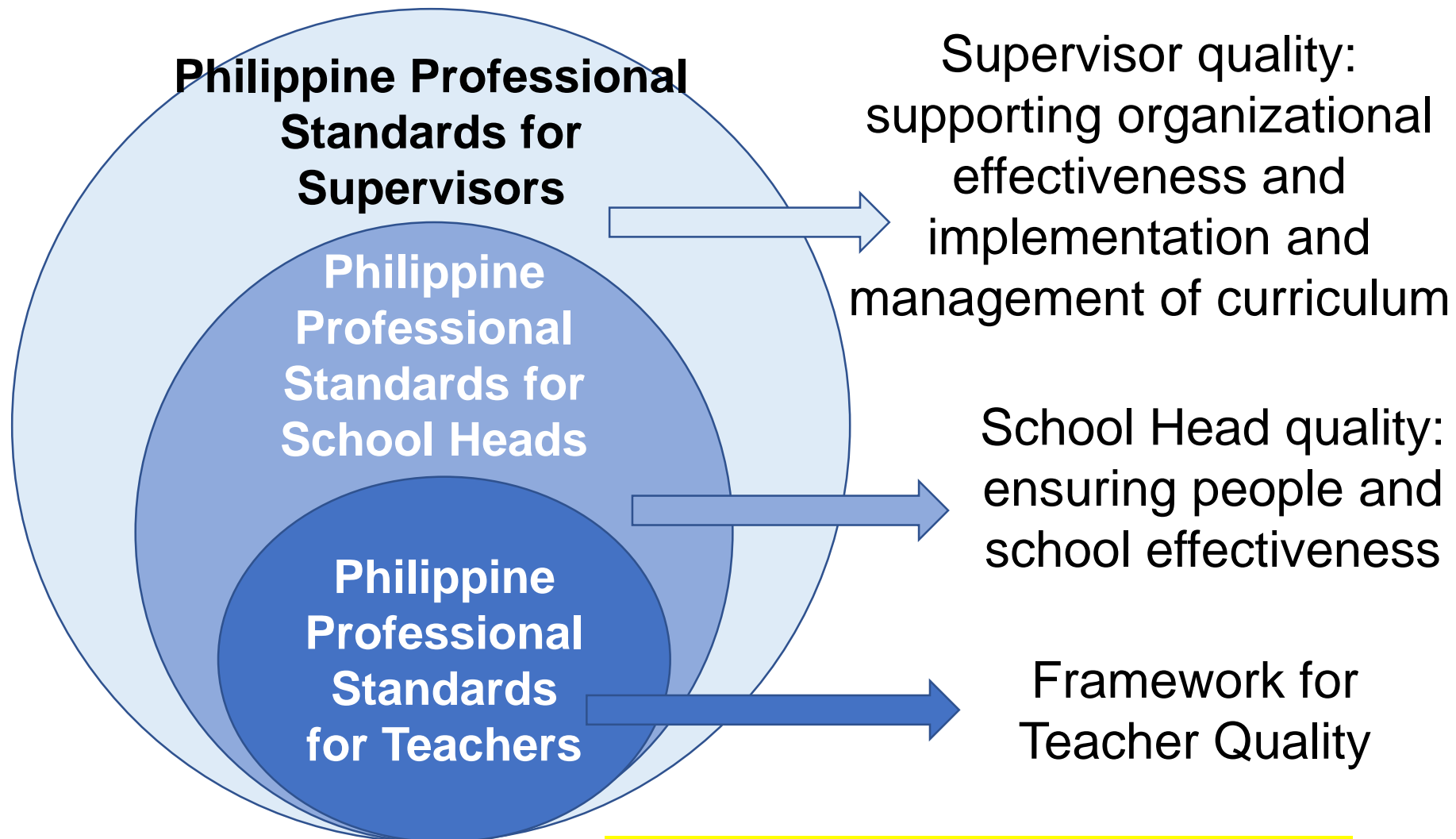THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

KEY POLICY LEVERS FOR HUMAN CAPITAL

- There are a large number of initiatives in the Philippines focused on boosting human capital development.

- Specific initiatives include the Philippines Plan of Action for Nutrition, the new Philippines Professional Standards for Teachers, the new Universal Health Coverage Law, and ongoing efforts to improve the *Pantawid Pamilyang Pilipino Program*.

- The principal challenge facing policymakers is the effective implementation of these initiatives. (p.60)
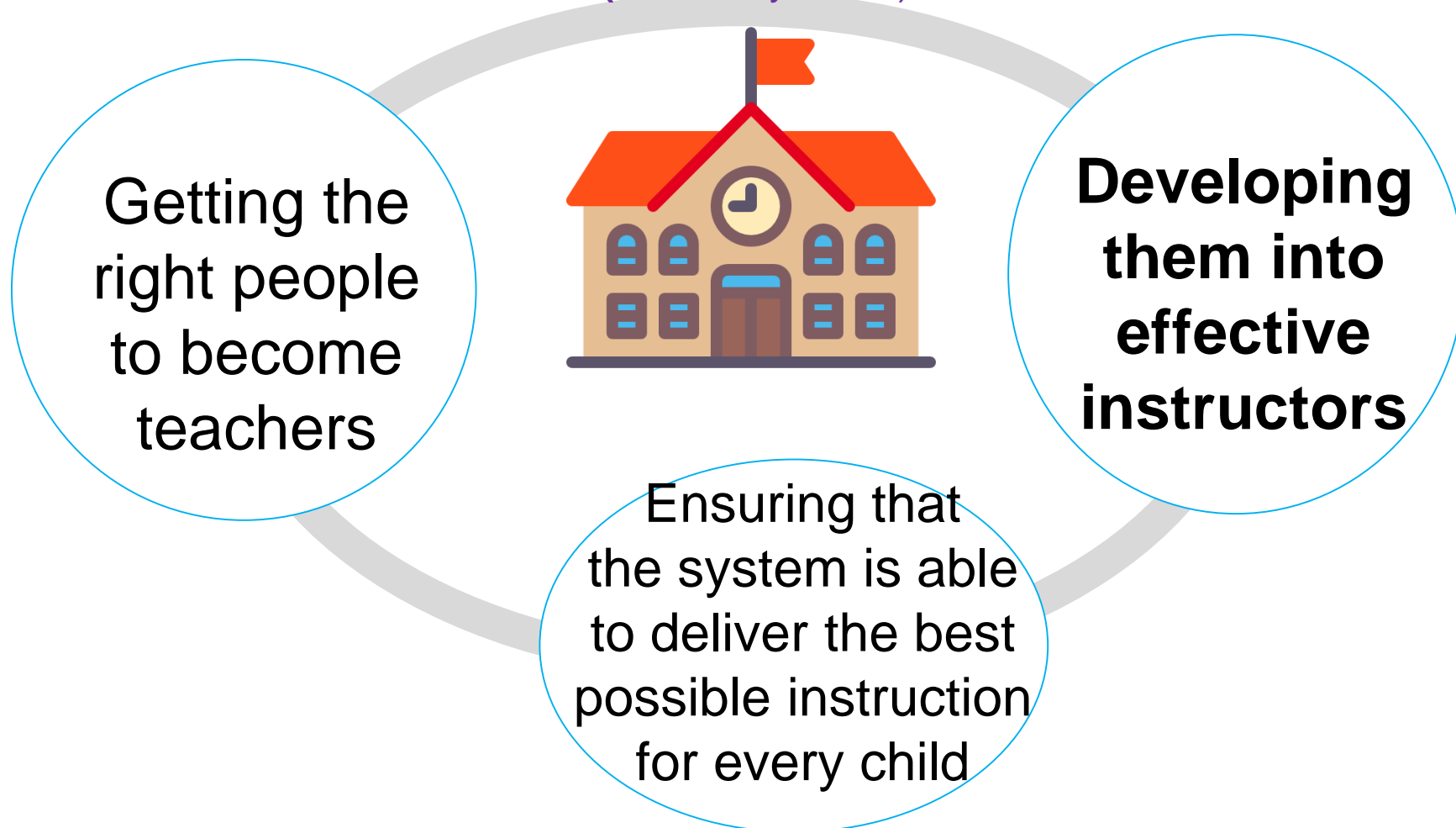
Strengthening the Human Capital

Philippine Professional Standards for Supervisors

Philippine Professional Standards for School Heads

Philippine Professional Standards for Teachers

Supervisor quality: supporting organizational effectiveness and implementation and management of curriculum

School Head quality: ensuring people and school effectiveness

Framework for Teacher Quality

Note: Pathways from teaching to school leadership for discussion.

Three things that matter most in top school systems

(McKinsey, 2007)

Getting the right people to become teachers

Developing them into effective instructors

Ensuring that the system is able to deliver the best possible instruction for every child

Thank you.