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ICT for Teacher Training

Jonghwi Park
ICT in Education, UNESCO Bangkok

10 November 2016



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Outline

- Teachers and ICT
- Competency-based ICT teacher training
- Cases
 - Australia
 - Korea
 - Singapore
 - China
- Q&A





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Teachers and ICT



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Teachers over Technologies

- Investigated four “mysteriously” high performing countries
- Finland, South Korea, Poland

Common key factors?

- Spending ~~X~~ per pupil
- Technology ~~X~~
- Class ~~X~~ size
- Teachers, teachers, teachers.
- Raise the expectations for what kids could accomplish (Inject rigor to the system!!)

the
smartest
kids in
the world



and how they got that way

amanda ripley

author of *The Unthinkable*

Computers aren't magic, but teachers are.



Nothing can substitute for a good teacher*.

* UNESCO Director-General Irina Bokova, in her opening remark at Asia Pacific Ministerial Forum on ICT in Education, 2012

**Craig R. Barrett, Former CEO, Intel Corporation.



Top 3 actions needed to assist teachers to be the teachers for the future we want



By 418 respondents from the 17th UNESCO APEID Conference 2014



Conditions for Innovative Teaching

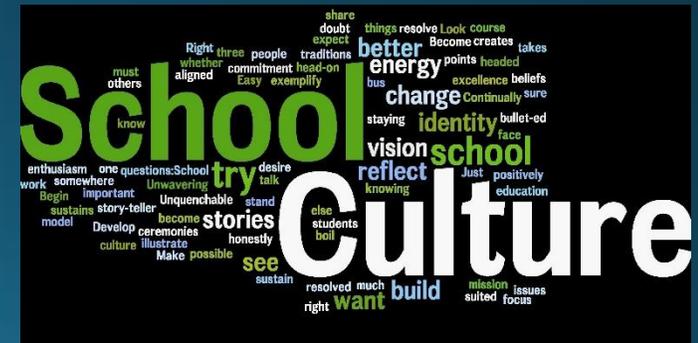
- From ITL Research (2011) investigating schools in 7 countries (<http://www.itlresearch.com/>)

Three common conditions:

Teacher Collaboration & Peer Support



Engaging Practice-Oriented Training





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Summary

- Teachers are the key to successful ICT integration in education.
- Kinds of support teachers need are:
 - Not one time lecture-based training;
 - But a long-term systematic professional development
 - that can create collaborative environments and school culture.



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Competency-based ICT teacher training

Why?



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Is this story familiar to you? (1)

Intel®
Teach
Program

Microsoft®
Partners in Learning

ORACLE™ ACADEMY



Capacity Building Workshop on
Project-Based Learning and
Telecollaboration

August 9-12, 2010, East China Normal University,
Shanghai, China



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Facilitating Effective ICT-Pedagogy
Integration Project
Funded by Korean-Funds-In-Trust (KFIT)

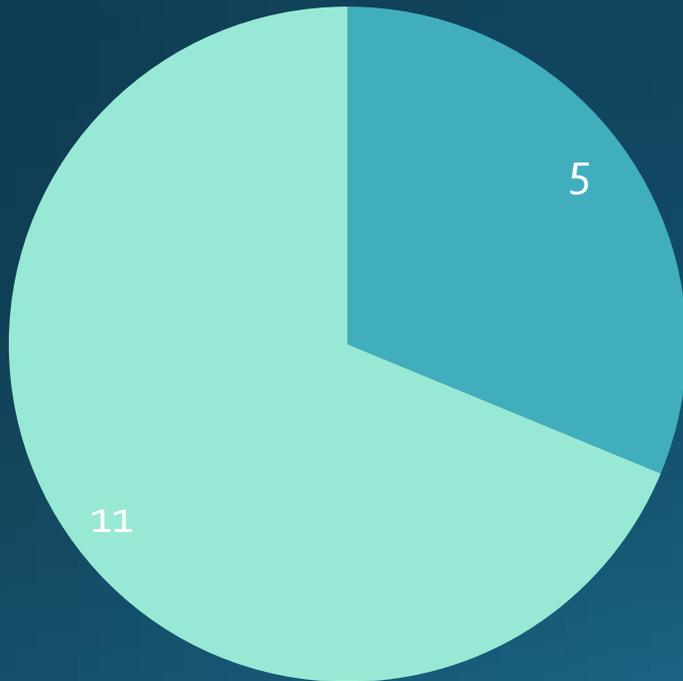




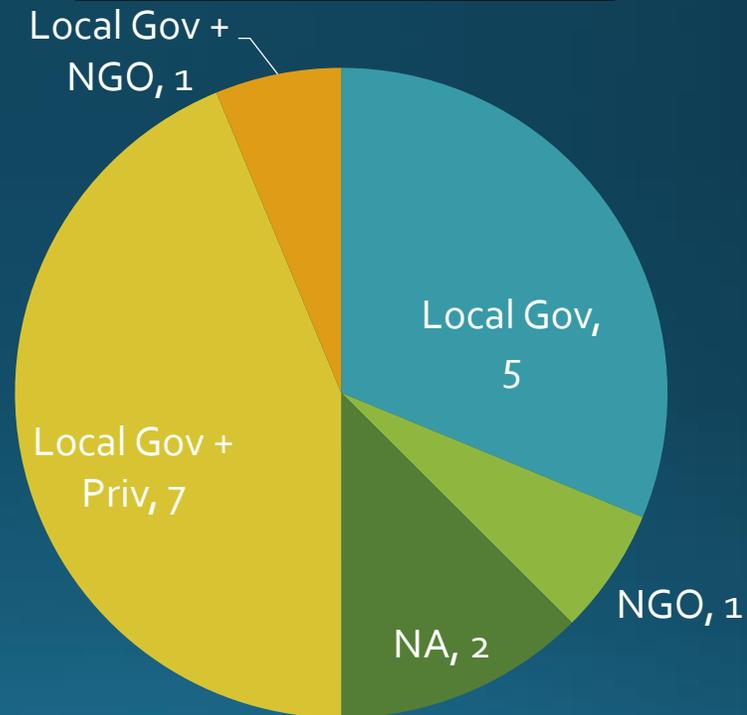
Teacher training providers

According to a review of 16 Member States in SEA and EA countries in 2013:

Pre-service Training
Provider (N=16)



In-service Training
Provider (N=16)



■ National TTC, NIE, ■ University (TEI)



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Is this story familiar to you? (1)

- One time course
- The same group of teachers taking similar courses repeatedly
- Only the number of hours matters.
- No monitoring and evaluation



Is this story familiar to you? (2)

Visions in Education

Basic
Education

Knowledge
acquisition

Knowledge
deepening

Knowledge
creation

Your policy
vision is
here

Your Teacher Development Curriculum in Reality

- The history of computers
- How to connect hardware
- How to use productivity tools

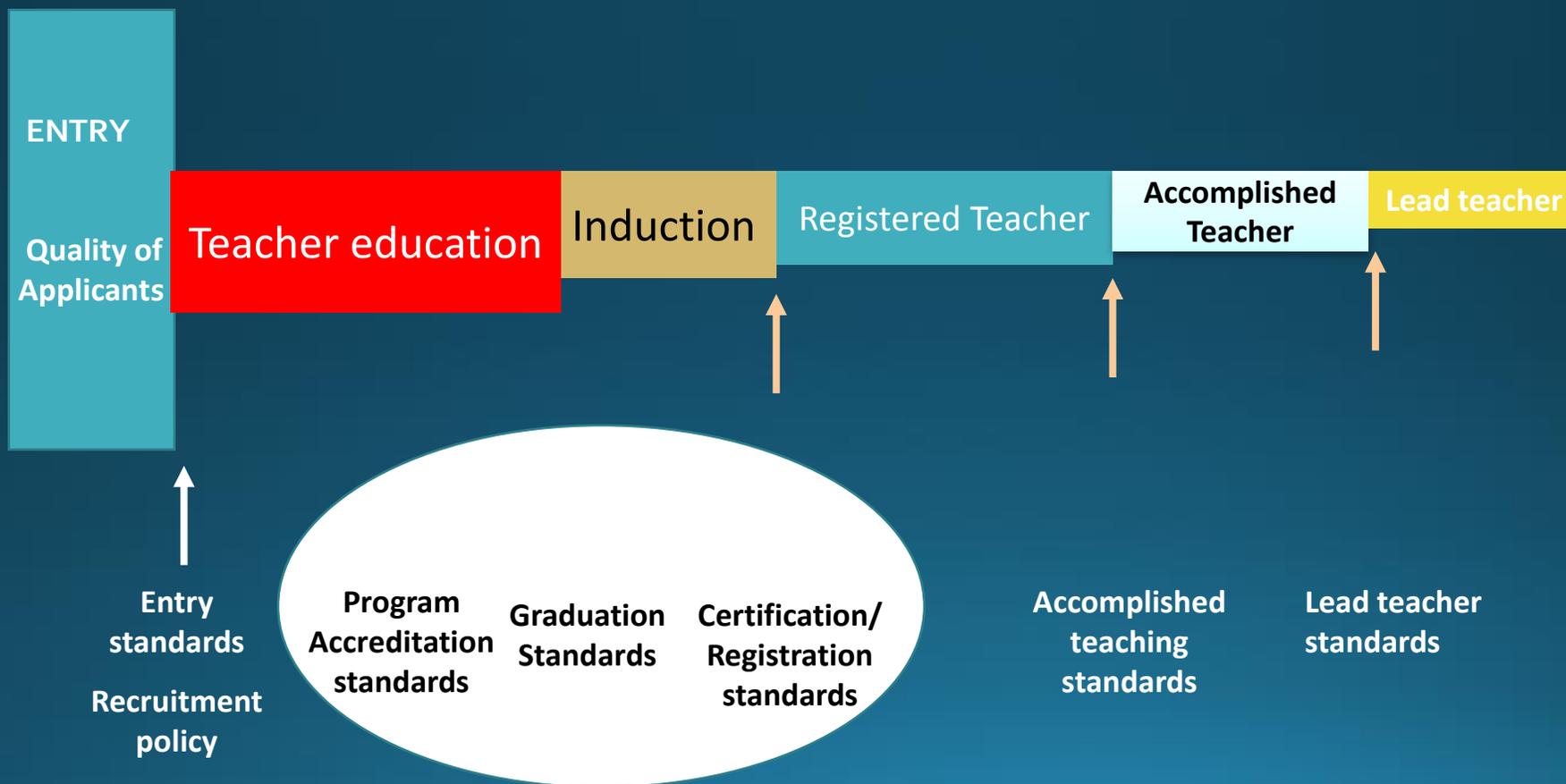




Australian Case

Promoting Teacher Quality:

Mechanisms and Standards for Teacher Quality Assurance





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Competency-based ICT teacher training

What?



What is competency-based teacher training?



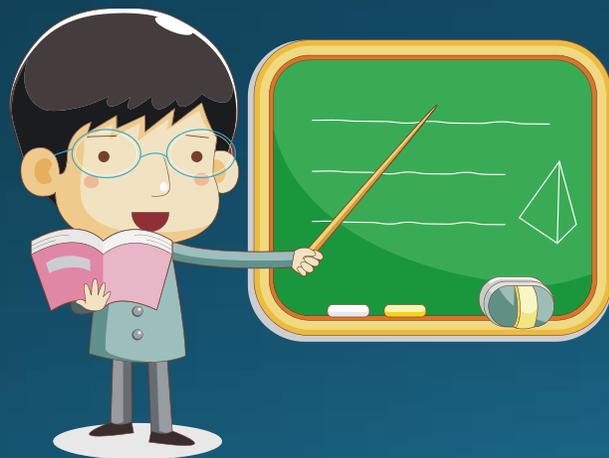


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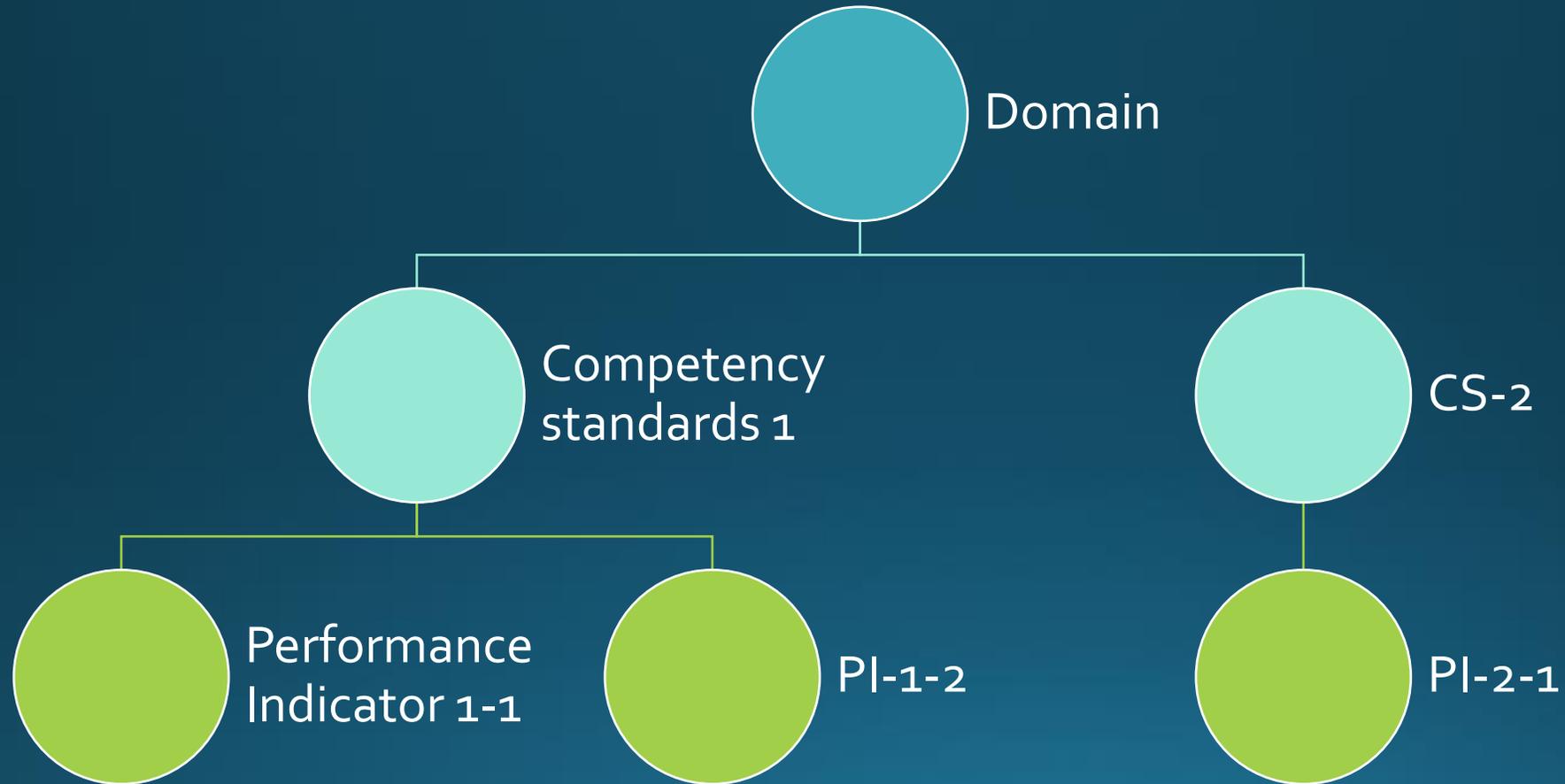
What is competency?

- Combination of **knowledge, skills and attitudes** that an individual needs to have and use at work, school or other working environments.





Domain, Standards and Indicators





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Competency-based ICT teacher training

How?



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Suggested procedure

1. Prep:
 - Mapping your national goals with existing teacher training
 - Teacher and school readiness assessment
 - Framework study
2. Competency standards development
3. Teacher Curriculum development
4. Assessment system development
5. Pilot
6. Implementation
7. Monitoring and evaluation



Education Vision

Australia

- Australian schooling promotes equity and excellence; and
- Young Australians become successful learners, confident and creative individuals, and active and informed citizens. (*Melbourne Declaration (2008)*)

Korea

- Transformation from traditional learning into 21st century learning (*SMART (Self-directed, Motivated, Adaptive, Resource-enriched, and Technology-embedded) Education initiative (2011)* ; complemented with *ICT use in education master plan*)

China

- Modernization of education; focus on people development, comprehensive quality education, with a drive for innovation and problem-solving skills (*National Medium and Long Term Educational Reform and Development Plan (2010-2020)*)

Tanzania

- Increase in youth literacy & GER, inclusive & quality education, sufficient teacher professional development (*PEDP (Primary Education Development Plan; 2001) and SEDP (Secondary Education Development Plan; 2004)*)



Australia

- Young Australians become successful learners, confident and creative individuals, and active and informed citizens

Career Stage	Focus Area 2.6: Information and Communication Technology (ICT)	Focus Area 3.4: Select and use resources	Focus Area 4.5: Use ICT safely, responsibly and ethically
Graduate	Implement teaching strategies for using ICT to expand curriculum learning opportunities for students.	Demonstrate knowledge of a range of resources, including ICT, that engage students in their learning.	Demonstrate an understanding of the relevant issues and the strategies available to support the safe, responsible and ethical use of ICT in learning and teaching.

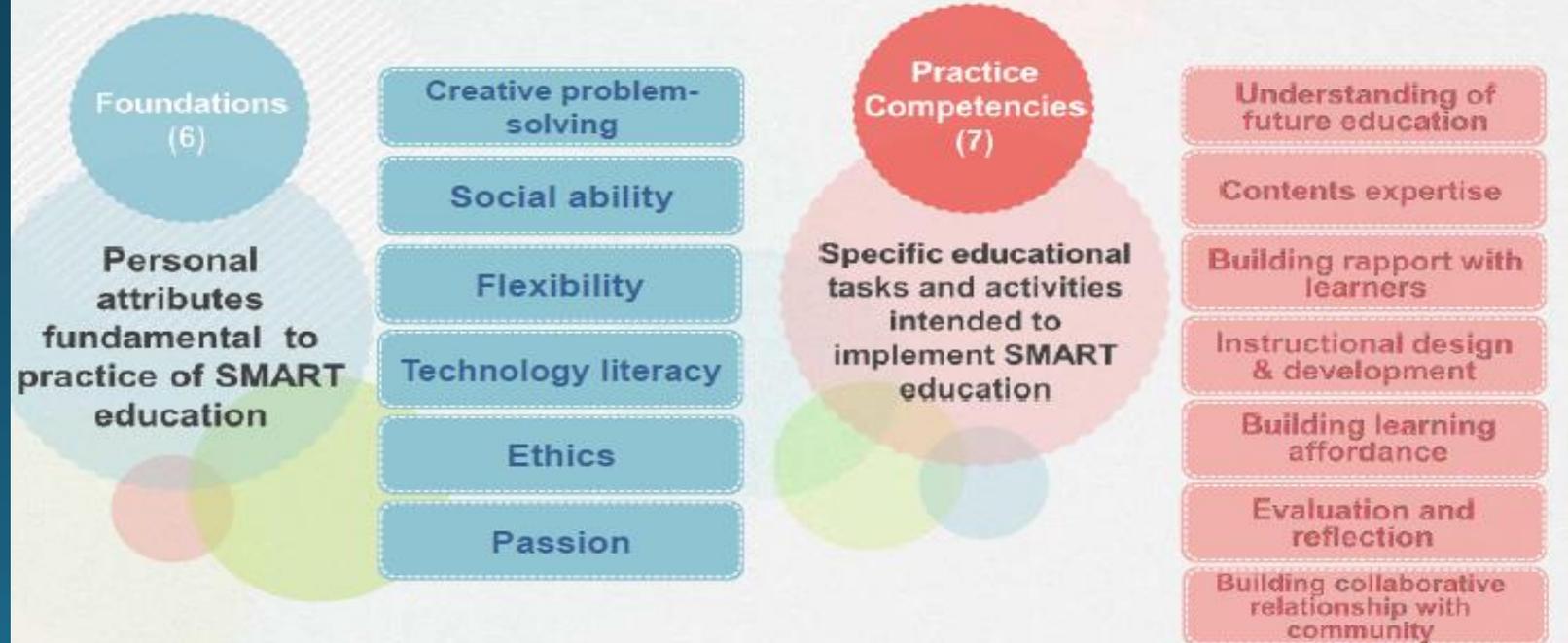


Korea

- Becoming a people powered nation: Transformation from traditional learning into 21st century learning – SMART Education Strategies

Teacher Competencies for SMART Education: 13 Competencies, 61 Indicators

Defined as "traits required for teachers who perform effective education to promote key competencies of 21st-century learners and to achieve educational innovation toward future education"





China

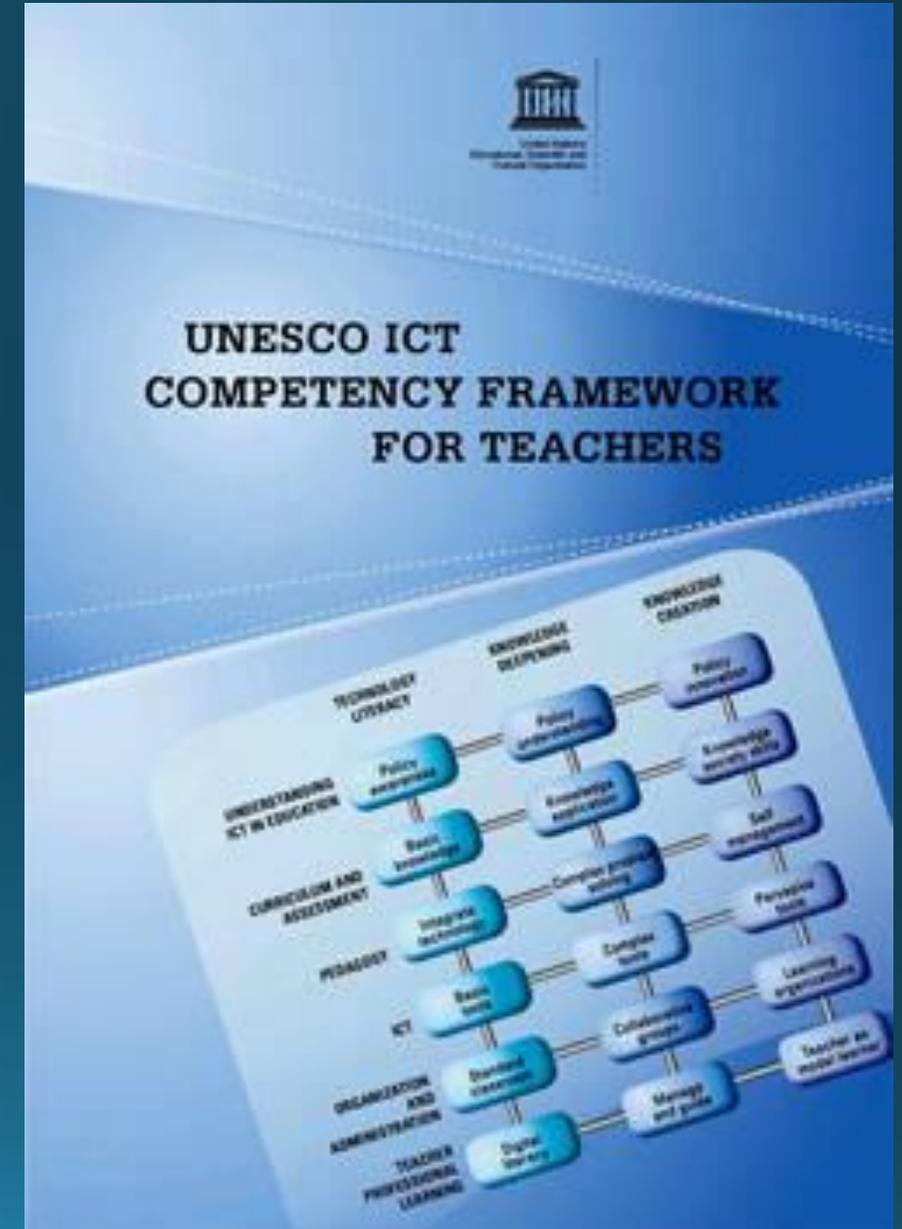
- Modernization of education; focus on people development, comprehensive quality education, with a drive for innovation and problem-solving skills (2004)

DOMAINS	STANDARD AREAS
Awareness and Attitude	<ul style="list-style-type: none">• Awareness of Educational Value of ICT• Self-consciousness of using ICT• Assessment and self-reflection• Concepts of Lifelong Learning
Knowledge and skills	<ul style="list-style-type: none">• Basic knowledge and Information• Basic ICT skills
Implementation and Innovation	<ul style="list-style-type: none">• Designing and implementing lessons• ICT-supported teaching and management• ICT-enhanced research and professional development• ICT-mediated communication and collaboration
Social Responsibility	<ul style="list-style-type: none">• Applying ICT equitably• Applying ICT effectively• Applying ICT appropriately• Self-regulating practice



Frameworks

- UNESCO ICT Competency Standards for Teachers
- ISTE Framework





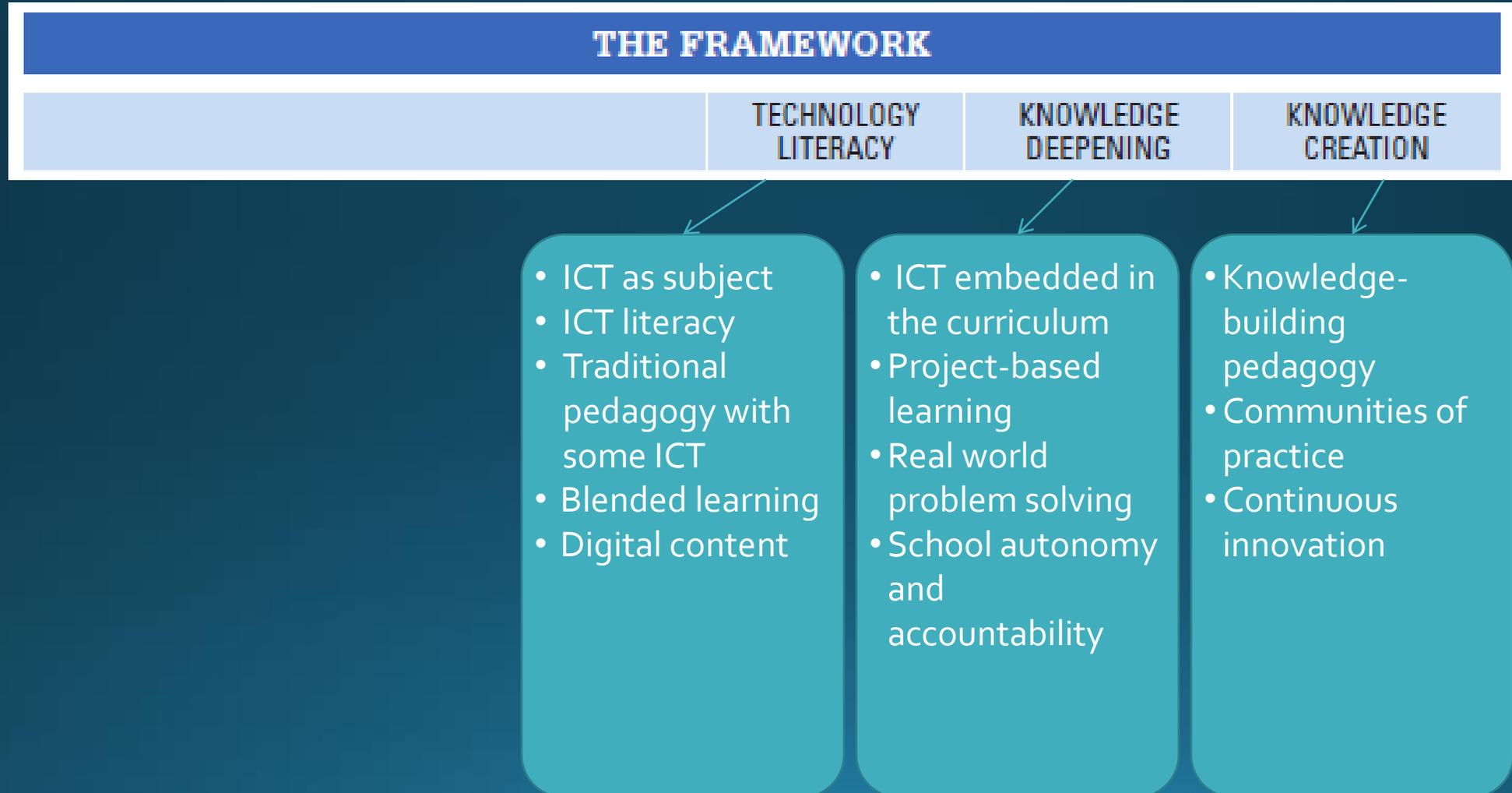
UNESCO ICT CFT

THE UNESCO ICT COMPETENCY FRAMEWORK FOR TEACHERS

	TECHNOLOGY LITERACY	KNOWLEDGE DEEPENING	KNOWLEDGE CREATION
UNDERSTANDING ICT IN EDUCATION	Policy awareness	Policy understanding	Policy innovation
CURRICULUM AND ASSESSMENT	Basic knowledge	Knowledge application	Knowledge society skills
PEDAGOGY	Integrate technology	Complex problem solving	Self management
ICT	Basic tools	Complex tools	Pervasive tools
ORGANIZATION AND ADMINISTRATION	Standard classroom	Collaborative groups	Learning organizations
TEACHER PROFESSIONAL LEARNING	Digital literacy	Manage and guide	Teacher as model learner



Three Approaches





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Six Areas (Domains) of Teachers' Work

UNDERSTANDING ICT IN EDUCATION

CURRICULUM AND ASSESSMENT

PEDAGOGY

ICT

ORGANIZATION AND ADMINISTRATION

TEACHER PROFESSIONAL LEARNING



18 modules

THE FRAMEWORK			
	TECHNOLOGY LITERACY	KNOWLEDGE DEEPENING	KNOWLEDGE CREATION
UNDERSTANDING ICT IN EDUCATION	1	1	1
CURRICULUM AND ASSESSMENT	2	2	2
PEDAGOGY	3	3	3
ICT	4	4	4
ORGANIZATION AND ADMINISTRATION	5	5	5
TEACHER PROFESSIONAL LEARNING	6	6	6



Tanzania

- Increase in youth literacy & GER, inclusive & quality education, sufficient teacher professional development

UNESCO ICT CFT	Adapted for Tanzania	Sub domains for Tanzania
Understanding ICT in Education	Policy	Policy awareness, Classroom practice
Curriculum & Assessment	Curriculum & Assessment	Curriculum planning, Learning environment, Student experience, Assessment, Communication & Collaboration, Special needs
Pedagogy	Pedagogy	Planning, Problem-based learning, Student experience, Project-based learning, Communication & Collaboration
ICT	ICT	Productivity tools, Authoring tools, Internet, Comm & Coll., Admin, Educational SW
Organization & Administration	Organization & Management	Teacher understanding & leadership, ICT integration, Classroom management, Appropriate use,
Teacher Professional Learning	Teacher Development	Planning, Teacher awareness & participation, Informal learning



ISTE Standard Framework

2nd edition
(1997)

- three domains, 18 indicators
- a. Basic Computer/Technology Operations and Concepts
- b. Personal and Professional Use of Technology
- c. Application of Technology in Instruction

3rd edition
(2004)

- six domains, 23 indicators
- a. Technology Operations and Concepts
- b. Planning and Designing Learning Environments and Experiences
- c. Teaching, Learning, and Curriculum
- d. Assessment and Evaluation
- e. Productivity and Professional Practice
- f. Social, Ethical, Legal, and Human Issues

4th edition
(2008)

- five domains, 20 indicators
- a. Facilitate and Inspire Student Learning and Creativity
- b. Design and Develop Digital Age Learning Experiences and Assessments
- c. Model Digital Age Work and Learning
- d. Promote and Model Digital Citizenship and Responsibility
- e. Engage in Professional Growth and Leadership



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ISTE Standard Framework

- Countries that localized and developed their own standards, adopting from the ISTE framework: Malaysia, Korea, Japan, Australia, the Philippines and more
- Also available for students and administrators (stemming from TSSA-Technology Standards for School Admin)
- For more info: <http://www.iste.org/standards.aspx>



Diverse approaches

	Embedded	Stand-alone
Adapted framework	Australia	Uzbekistan, China
Unique and national-specific	Singapore, Korea	Korea (previous)



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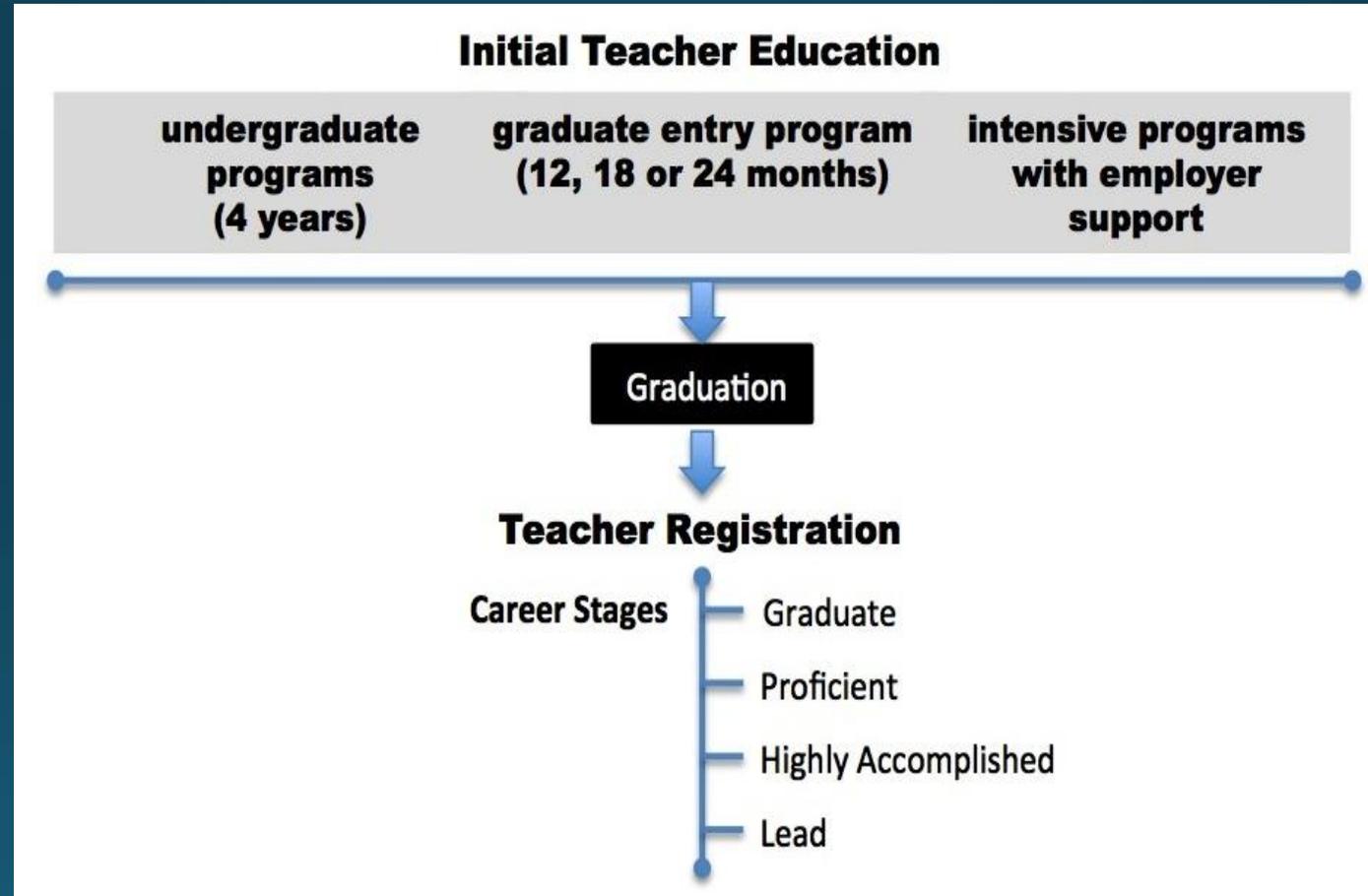
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Embedded and adapted framework

Australia



Teacher career ladder in AUS





Australian Professional Standards for Teachers (APST)

Education vision: Young Australians become successful learners, confident and creative individuals, and active and informed citizens

Domains of teaching	Standards
Professional Knowledge	<ol style="list-style-type: none">1. Know students and how they learn2. Know the content and how to teach it
Professional Practice	<ol style="list-style-type: none">3. Plan for and implement effective teaching and learning4. Create and maintain supportive and safe learning environments5. Assess, provide feedback and report on student learning
Professional Engagement	<ol style="list-style-type: none">6. Engage in professional learning7. Engage professionally with colleagues, parents/carers and the community

APST	Std2: Know the Content and How to teach it	Std3: Plan for and implement effective teaching and learning	Std4: Create and maintain supportive & safe learning environments
ICT-related Focus Areas	Focus Area 2.6: Information and Communication Technology (ICT)	Focus Area 3.4 Select and use resources	Focus Area 4.5: Use ICT safely, responsibly and ethically
Graduate	Implement teaching strategies for using ICT to expand curriculum learning opportunities for students.	Demonstrate knowledge of a range of resources, including ICT ₁ that engage students in their learning.	Demonstrate an understanding of the relevant issues and the strategies available to support the safe, responsible and ethical use of ICT in learning and teaching.
Proficient	Use effective teaching strategies to integrate ICT into learning and teaching programs to make selected content relevant and meaningful.	Select and/or create and use a range of resources, including ICT ₁ to engage students in their learning.	Incorporate strategies to promote the safe, responsible and ethical use of ICT in learning and teaching.
Highly Accomplished	Model high-level teaching knowledge and skills and work with colleagues to use current ICT to improve their teaching practice and make content relevant and meaningful.	Assist colleagues to create, select and use a wide range of resources, including ICT, to engage students in their learning.	Model, and support colleagues to develop strategies to promote the safe, responsible and ethical use of ICT in learning and teaching.
Lead	Lead and support colleagues within the school to select and use ICT with effective teaching strategies to expand learning opportunities and content knowledge for all students	Model exemplary skills and lead colleagues in selecting, creating and, evaluating resources, including ICT, for application by teachers within or beyond the school	Review or implement new policies and strategies to ensure the safe, responsible and ethical use of ICT in learning and teaching.



Autonomy and options

- **University A** has opted to develop dedicated semester-long ICT subjects
- **University B** has elected to cover the ICT elements of Program Accreditation Standard 1 as a cross-curriculum or embedded activity
- **University C**, has adopted a hybrid approach – It developed a core *Digital Learning* subject that asks students to critique and adopt appropriate pedagogical approaches using learning technologies to engage teenagers in authentic, active and collaborative learning and to investigate contemporary issues and current trends in ICT in education through an inquiry project.



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Illustrations of Practice

See the Standards in action across a range of career stages, focus areas, contexts, year levels and subject areas.

Illustrations of Practice - by career stage

Illustrations of Practice showcase teaching practice from across Australia at the four career stages of the Australian Professional Standards for Teachers. The Illustrations include a range of different pedagogical approaches, and are not intended to be prescriptive or exhaustive.

AITSL is grateful to the teachers who shared their authentic, illustrative and instructive practice. The career stage attributed to each Illustration reflects the content of the single lesson or sequence, and is not an assessment of the teacher's overall level of practice.

Graduate

[View all 38 >>](#)



'Who am I?' puzzles



Creating wikis



Seeking professional learning

Proficient

[View all 137 >>](#)



Making money amounts



Team teaching moderation



Making connections in science

Highly Accomplished

[View all 103 >>](#)



Improved literacy outcomes



High expectations



Engaging parents and carers

Lead

[View all 33 >>](#)



Using the Standards



Creative online learning



Science and agriculture in special

Samples:

- Using ICT in Science - <http://www.aitsl.edu.au/australian-professional-standards-for-teachers/illustrations-of-practice/detail?id=IOP00258>
- Engaging thru ICT - <http://www.aitsl.edu.au/australian-professional-standards-for-teachers/illustrations-of-practice/detail?id=IOP00201>



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Embedded and unique (country-specific)

Korea

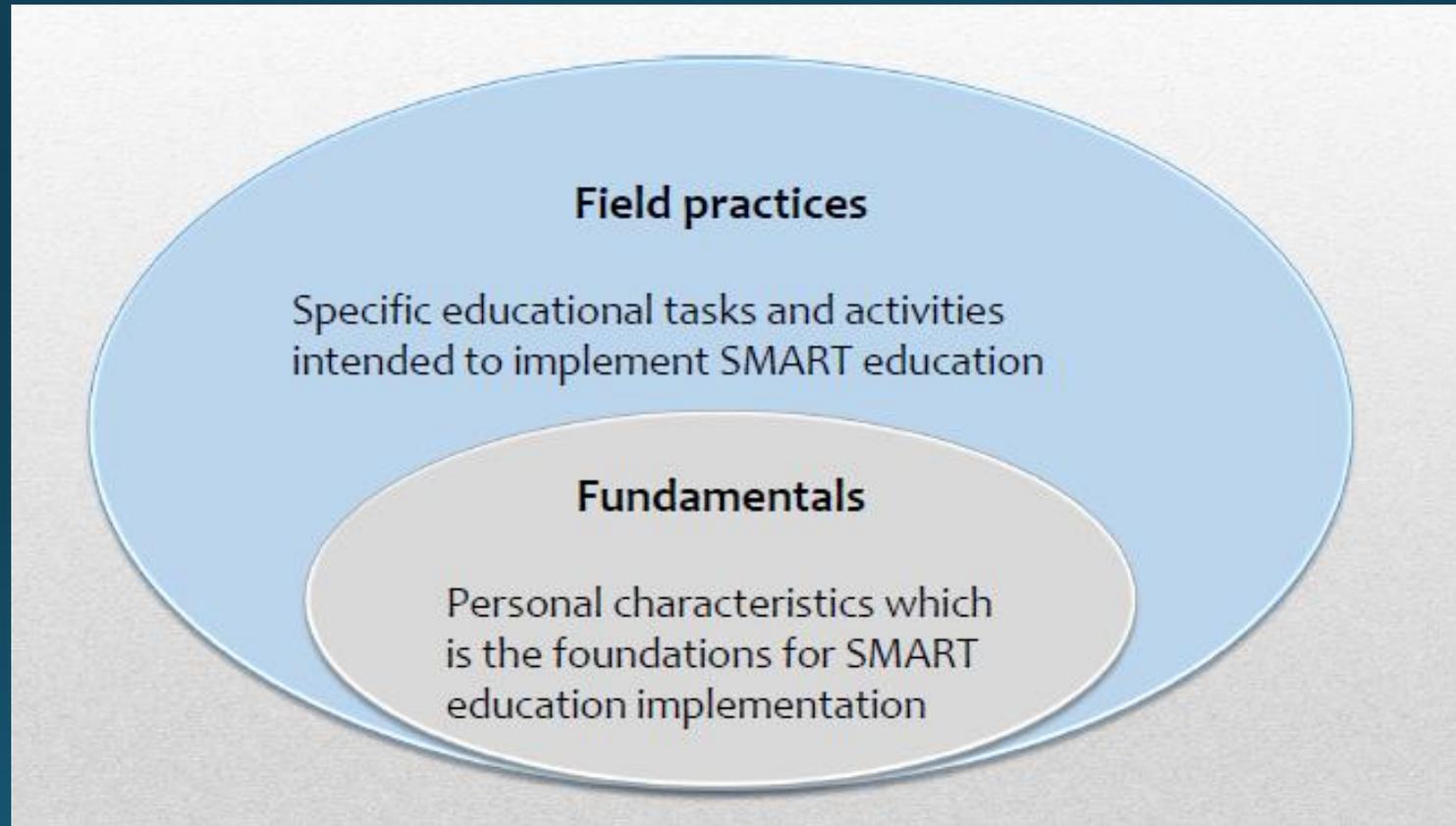


Procedures





Sample results: Domains





SMART competencies

- 2 domains, 13 competencies

Foundations

- Creative problem solving
- Social ability
- Flexibility
- Technology literacy
- Ethics
- Passion

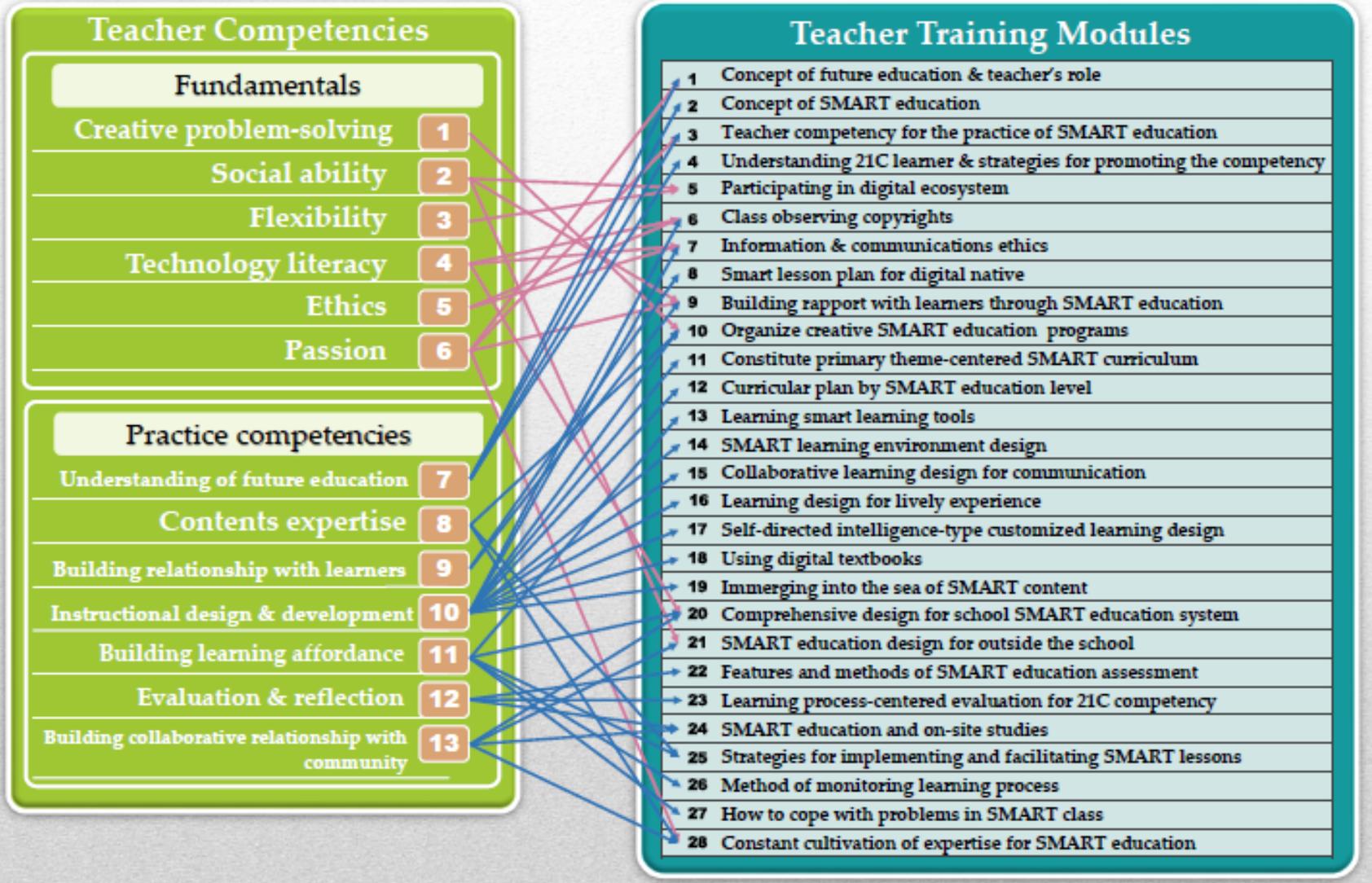
Practice

- Understanding future education
- Content expertise
- Building relationship with
- Instructional design & development
- Evaluation & reflection
- Building collaborative learning community

Turned into 28 modules



Competency based module design





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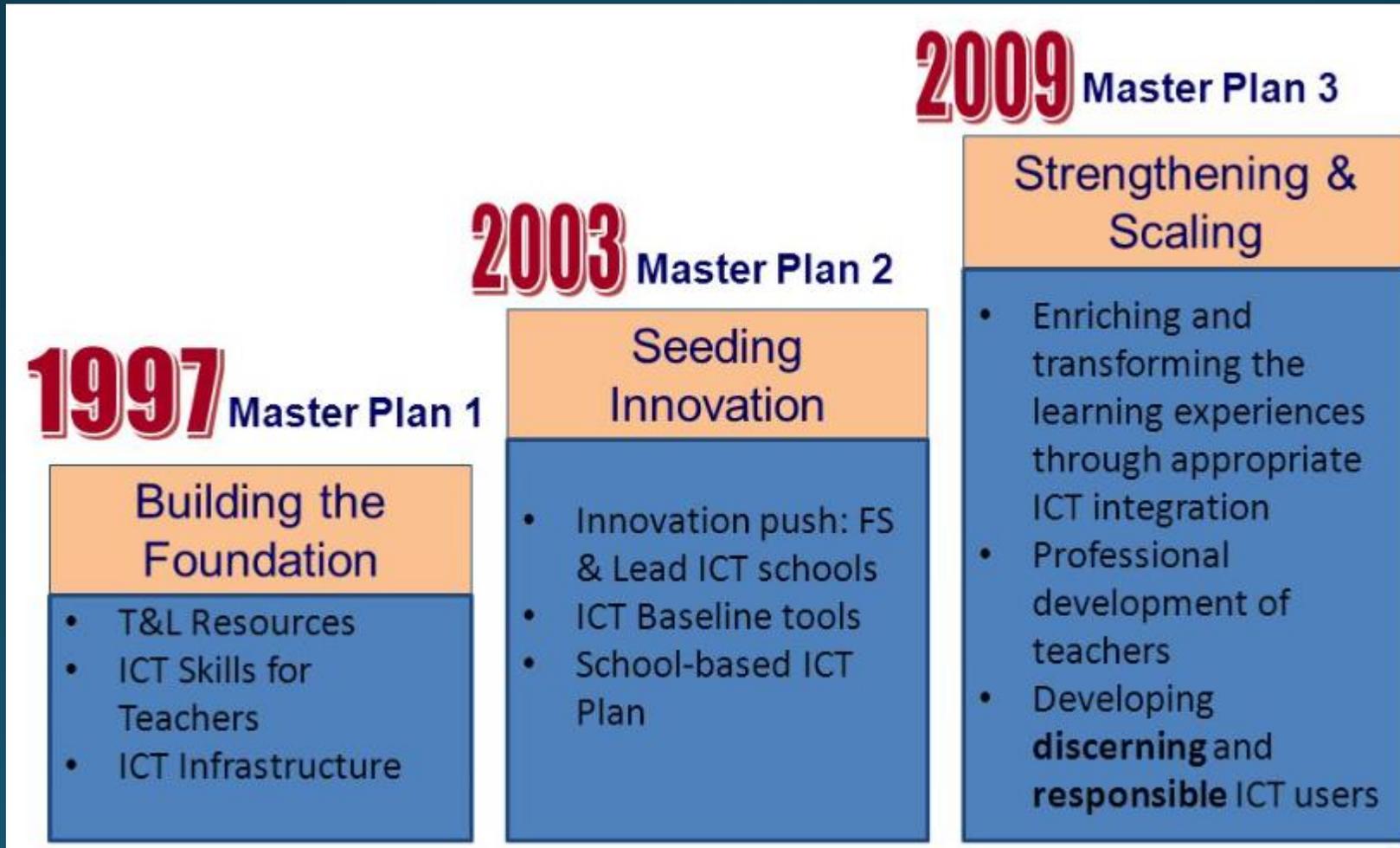
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Embedded and unique (country-specific)

Singapore



Masterplan Development: Coherent Continuum





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Teacher training in MP 1

- 30-hour training on:
 - Basic knowledge of PC and network
 - Office applications (Word, Powerpoint, Excel)
 - the use of Internet
- Mostly on how to digitize teacher-centric instructional materials



Teacher training in MP 3

- Teacher Education for the 21st century (TE21)
- Aligned with values, skills and knowledge

Attributes of the 21st Century Teaching Professional

V1 - Learner-Centered Values	V2 - Teacher Identity	V3 - Service to the Profession and Community
<ul style="list-style-type: none">- Empathy- Belief that all children can learn- Commitment to nurturing the potential in each child- Valuing of diversity	<ul style="list-style-type: none">- Aims for high standards- Enquiring nature- Quest for learning- Strives to improve- Passionate- Adaptive and resilient- Ethical- Professional	<ul style="list-style-type: none">- Collaborative learning and practice- Building apprenticeship and mentorship- Social responsibility and engagement- Stewardship

SKILLS

- Reflective skills & thinking dispositions
- Pedagogical skills
- People management skills
- Self-management skills
- Administrative & management skills
- Communication skills
- Facilitative skills
- Technological skills
- Innovation and entrepreneurship skills
- Social and emotional intelligence

KNOWLEDGE

- Self
- Pupil
- Community
- Subject content
- Pedagogy
- Educational foundation and policies
- Curriculum
- Multicultural literacy
- Global awareness
- Environmental awareness



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Teacher training in MP 3

- Exemplary courses:
 - ICT for Meaningful Learning
 - Supporting Self-directed Collaborative Learning with ICT



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ICT for Meaningful Learning

- The 3rd Singapore ICT Masterplan focuses on self-directed and collaborative learning with ICT
- NIE adopted the Technological Pedagogical and Content Knowledge (TPACK) framework to build and research preservice and in-service teachers' TPACK through design-based learning
- This case describes the approach and report the preservice teachers' perception and performance
- Sample syllabus



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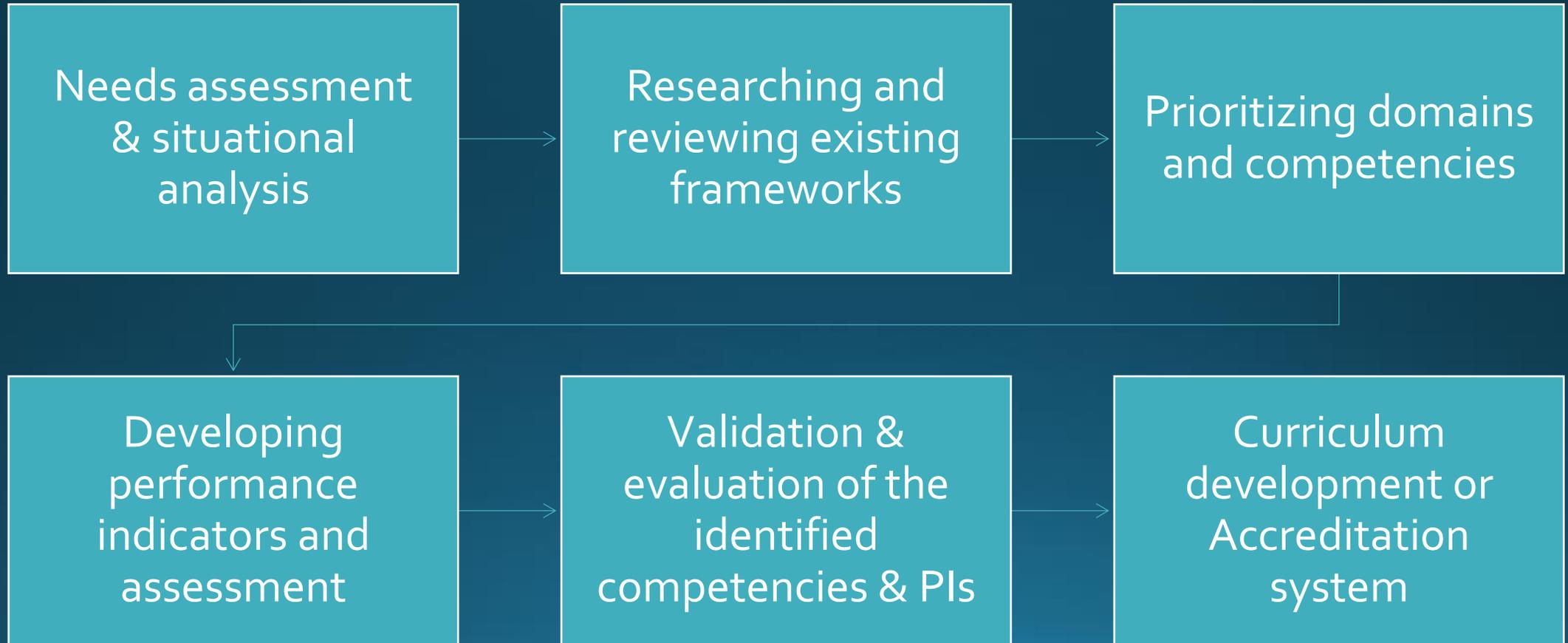
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Adapted framework and stand-alone

China



General procedures





China

- Modernization of education; focus on people development, comprehensive quality education, with a drive for innovation and problem-solving skills (2004)

DOMAINS	STANDARD AREAS
Awareness and Attitude	<ul style="list-style-type: none">• Awareness of Educational Value of ICT• Self-consciousness of using ICT• Assessment and self-reflection• Concepts of Lifelong Learning
Knowledge and skills	<ul style="list-style-type: none">• Basic knowledge and Information• Basic ICT skills
Implementation and Innovation	<ul style="list-style-type: none">• Designing and implementing lessons• ICT-supported teaching and management• ICT-enhanced research and professional development• ICT-mediated communication and collaboration
Social Responsibility	<ul style="list-style-type: none">• Applying ICT equitably• Applying ICT effectively• Applying ICT appropriately• Self-regulating practice



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UNESCO Project

- Supporting Competency-based Teacher Training Reforms
- Duration: August 2013-July 2017 (48 months)
- Funding source: Korea Funds-in-Trust
- Beneficiary countries: Member States in AP with three pilot countries (Nepal, Uzbekistan, Philippines)
- Country implementation: Aug 2014-Aug 2016





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Summary of Pilot Country Progress

	Uzbekistan	Nepal	Philippines
Local implementing partner	UNESCO Tashkent	UNESCO Kathmandu	SEAMEO INNOTECH
Focus Area	In-service teacher training	In-service teacher training	Pre-service teacher education
Overall Professional Teacher Competency Standards	None (for language teachers)	Endorsed in 2016 (new)	Existing, being reviewed and revised
Approach taken	Stand-alone ICT competency standards for teachers	ICT stream in overall teacher competency standards	ICT stream in overall teacher competency standards
Status as of July 2016	Competency AND curriculum endorsed	Draft competency under government review	Draft competency under review and public hearing
Curriculum status	2 modules (basic and advanced)	2 modules	TTL 1 (generic) TTL 2 (subject specific)



Domains of each country

UNESCO	Uzbekistan	Nepal	Philippines
Understanding ICT in Ed	Understanding ICT in Ed	Knowledge and skill of ICT	Understanding ICT in Ed
Curriculum & Assessment	Curriculum & Assessment	Select and utilize ICT integrated teaching learning strategies	Curriculum & Assessment
Pedagogy	Teaching practices	Develop and adapt digital learning materials	Pedagogy
Technology (ICT)	Hardware and software (ICT)	Promote effective communication and collaboration for learning	Technology tools
Organization & Admin	Organization & management	Assess learning and provide feedback	Organization & Admin
Teacher professional learning	Professional development	Be aware on IT policy and contemporary digital culture and demonstrate in professional practices	Teacher Professional Learning
			Teacher Disposition



Comparison

	Pros	Cons
Adapting from existing frameworks	<ul style="list-style-type: none">• Cost and time effective	<ul style="list-style-type: none">• Might lack ownership
Developing brand-new bespoke standards	<ul style="list-style-type: none">• Maximize teachers involvement• Ownership	<ul style="list-style-type: none">• Expensive and time-consuming• Technical expertise needed
Adding ICT on to teacher professional standards	<ul style="list-style-type: none">• Compliance to general professional standards• More generic and open for creative implementation by teacher education institutions/ providers	<ul style="list-style-type: none">• Requires bigger autonomy of education institutions• relies on more advanced local universities and education institutions



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Q&A

Thank You.

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