UNESCO ICT Competency Framework for Teachers (ICT-CFT) and Institutional Strategy for Teacher Training on ICT-pedagogy Integration
1. ICT CFT: Outputs & Review
2. TPCK: Structure & Development
3. Teacher Training: Institutional Strategy
UNESCO ICT Competency **Framework** for Teachers (ICT CFT) – A reference framework

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<th>Technology Literacy</th>
<th>Knowledge Deepening</th>
<th>Knowledge Creation</th>
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<td>Basic Knowledge</td>
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ICT CFT: Outputs & Review

Goal

ICT-CFT project aims to provide guidelines for planning teacher education programmes and training offerings that will prepare pre-service teachers or facilitate in-service teachers’ professional development on effective ICT-pedagogy integration.

Latest Development

- A Policy Framework: the rationale, structure and approach
- Competency Framework Components (3 levels/approaches $\times 6$ components) and the specification of the components
- Two exemplary expanded syllabi: syllabus on the specific techniques to be acquired by teachers within each set of components: Technology Literacy & Knowledge Deepening
How to understand the CFT Structure

Understanding of ICT in Education
- Understanding of ICT in Education
- Understanding of ICT in Education
- Understanding of ICT in Education
- Understanding of ICT in Education

Curriculum and Assessment
- Curriculum and Assessment
- Curriculum and Assessment
- Curriculum and Assessment
- Curriculum and Assessment

Pedagogy
- Pedagogy
- Pedagogy
- Pedagogy
- Pedagogy

ICT
- ICT
- ICT
- ICT
- ICT

Organization & Administration
- Organization & Administration
- Organization & Administration
- Organization & Administration
- Organization & Administration

Teacher Professional Development
- Teacher Professional Development
- Teacher Professional Development
- Teacher Professional Development
- Teacher Professional Development
How to understand the CFT Structure

- The structure is more appropriate for planning the national ICT in Education Master Plans. Some components, such as policy, and curriculum & assessment, are more related to governmental accountability or institutional capacity (policy background) than to teachers’ competencies.

- Understanding the relation of the ICT-CFT to national education policies, ICT-readiness, teacher development programmes, and teachers’ professional and cultural environments is needed before any action.
How to apply the CFT: Localizing UNESCO’s ICT-CFT or developing your own standard?

1. ICT-CFT and **E-Readiness**: ICT Competency Standards should not be taken as mandatory standards for teachers in developing countries without sufficient e-readiness.

2. ICT CFT and **Teachers Pedagogical Content Knowledge**: Teachers’ ICT qualifications should be pivoted around pedagogy.

3. Teachers’ ICT competency is **not the determinant factor** for knowledge deepening and knowledge creation. Policy environment and other enabling factors are more critical.
Readiness of member states to adopt ICT(-pedagogy) competency standards: Gradualism is better than forcible deployment to avoid driving teachers away; Starting from pre-service teachers first?

- Tracer students on ICT-skilled students in labor market
- ICT and student achievements
- ICT for lifelong learning
- Expansion of ICT-related fields of studies
- New ICT vocational skills development
- ICT-enhanced content development & innovative pedagogical management
- Access to and use of basic ICT facilities
- ICT trained teachers and ICT support staff
- Radio & television instruction, educational software, email, etc.
- Internet-enabled self-learning
- Webcasting, podcasting, video/video conferencing, etc.
- Distance education, virtual/open universities, virtual high schools, virtual labs and online simulations, digital libraries, etc.

Input: Level of ICT provision in education system
Output: Evidence of impact of ICT on education
4. **Assumed pre-conditions** for knowledge deepening and knowledge creation are outside of the contextual realities of developing countries: the education level at which teachers work; the particular subject they teach and the methodologies are used; and the conditions of access to ICTs at schools by students and teachers.

5. Most **public teacher education institutions** in developing countries lack the capacity to design and provide training courses on ICT in education. Therefore the systematic improvement of ICT-CFT under these conditions remains a challenge.
China Educational Technology Standards: An example of self-developed standard

- **Step 1 Standard Setting**: China Educational Technology Standards (CETS) was developed and endorsed at 2004.

- **Step 2 Standard Adoption**: CETS was adopted as a new set of compulsory criteria for Teacher’s Certificate.

- **Step 3 Syllabus and Training Programme**: Government invested in and monitoring the development of in-service teacher training courses.

- **Step 4 Public Training Providers**: Government selected local training (and exam) centers through bidding process who are entitled funds and authorized certification.

- **Step 5 Coherent Teacher Education**: Pre-service teacher training courses reformed accordingly.
CETS-based In-service Teacher Training Courses on ICT-pedagogy Integration

Emerging Stage

Applying Stage

Infusing Stage

Transforming Stage

Course A

Course B
Training Course (A) for Teachers at Applying Stage

Unit 1 Orientation
Activity 1 Experiencing ICT in Education
Activity 2 Introduction to the Training Package
Activity 3 Collection and Management of Individual and Group Information
Unit Exercise and Reflection

Unit 2 Re-cap Educational Technology
Activity 1 Key Concepts of Educational Technology
Activity 2 Concepts and Methodology of Instructional Design
Activity 3 PPT on *My Understanding of Educational Technology*
Unit Exercise and Reflection

Unit 3 Application of Teaching Media and Resources
Activity 1 Understanding Values of Teaching Media
Activity 2 Processing and Compilation of Digital Learning Resources
Activity 3 Searching Educational Resources
Activity 4 Evaluating Educational Resources
Activity 4 Applying Digital Educational Resources Legally and Appropriately
Unit Exercise and Reflection

Unit 4 ICT-enhanced Expository-Based Learning
Activity 1 Analysis of Sample Lessons
Activity 2 Design and Development of Lesson Plans
Activity 3 Peer Review on Lesson Plans
Activity 4 Understanding and Applying Learning Assessment
Unit Exercise and Reflection
Unit 5 ICT-enhanced Inquiry-Based Learning
Activity 1 Analysis of Sample Lessons
Activity 2 Understanding and Applying Rubric
Activity 3 Design Inquiry-Based Learning Activities
Activity 4 Presentation and Peer Review on Lesson Plans
Unit Exercise and Reflection

Unit 6 Planning Facilitation and Organization of ICT-enhanced Lessons
Activity 1 Analysis of Sample Plans
Activity 2 Creation of Implementation Plans
Activity 3 Peer Review on Implementation Plans
Activity 4 Evaluating Students’ Performance
Activity 4 Management of Teaching and Learning Information (Portfolios)
Unit Exercise and Reflection

Unit 7 Infusing ICT across Curriculum
Activity 1 Understanding Integration of ICT and Curriculum
Activity 2 Discussion on Key Issues and Strategies of Infusing ICT across Curriculum
Activity 3 Upgrading Integration of ICT in Lesson Planning
Unit Exercise and Reflection

Unit 8 Documentation and Sharing of Training Outcomes
Activity 1 Compilation of e-Portfolios
Activity 2 Design and Development of Learning Webpages
Activity 3 Publication of Training Outcomes
Activity 4 Peer Review on Training Outcomes
Unit Exercise and Reflection

Annex I Sample lessons or lesson plans; Annex II Related Resources
Unit 1 Orientation
Activity 1 Sharing of Stories on Using ICT in Teaching
Activity 2 Introduction to the Training Package
Activity 3 Team Building and e-Portfolio Creation
Unit Exercise and Reflection: Blog; Mind Mapping Tools

Unit 2 Seminar on Infusing ICT across Curriculum
Activity 1 Understanding Integration of ICT and Curriculum
Activity 2 Diagnostic Study on Effectiveness of ICT-pedagogy Integration
Unit Exercise and Reflection

Unit 3 Integration of ICT in Unit Planning
Activity 1 Understanding and Analysis of Unit Planning
Activity 2 Planning Integration of ICT in Unit-level Learning
Activity 3 Creation of Mind Map of Unit Planning
Activity 4 Finalization of Integration of ICT in Unit-level Learning
Activity 5 Unit Plan Sharing and Peer Review
Unit Exercise and Reflection

Unit 4 Design of Inquiry Based Learning
Activity 1 Mapping Out Key Concepts
Activity 2 In-depth Analysis of Inquiry Based Learning
Activity 3 Design Inquiry Based Learning Activities
Activity 4 Presentation and Peer Review
Unit Exercise and Reflection
Unit 5 Development and Application of Thematic Learning Resources
Activity 1 Understanding Thematic Learning Resources
Activity 2 Designing Thematic Learning Resources
Activity 3 Creating a Website of Thematic Learning Resources
Activity 4 Publication of Websites and Peer Review
Unit Exercise and Reflection

Unit 6 Designing Unit-based Learning Assessment
Activity 1 Understanding Learning Assessment
Activity 2 Analysis of Unit-based Learning Assessment Plans
Activity 3 Applying Multiple Assessment in Evaluating Unit Learning Outcomes
Unit Exercise and Reflection

Unit 7 Organization and Facilitation of Unit-based Learning
Activity 1 Creation of Unit Implementation Plans
Activity 2 Reflection on Lesson Implementation and Action Study
Unit Exercise and Reflection

Unit 8 Sharing of Outcomes and Reflection over Training Process
Activity 1 Compilation of Training Outcomes
Activity 2 Publication of Training Outcomes
Activity 3 Reflection over Process
Unit Exercise and Reflection

Annex I Sample lessons or lesson plans

Annex II Related Resources
UNESCO’s roles in promoting ICT CFT

- Standard setter
- Capacity builder
- Laboratory of Ideas
- Clearing house
- Catalyst of international cooperation

→ the lead UN agency for e-learning
What UNESCO should and will do:

- **Standard setting and capacity building**
  - Strengthening the national capacity in localizing or **developing their own** ICT competency standards for teachers
  - Capacity building for teacher training institutions in adapting curriculum and improving the capacity of teacher educators

- **Advocacy of enabling policy environment**

What UNESCO should NOT do
UNESCO will not provide a seal of alignment or certification, either directly or indirectly
2. TPCK: Structure and Teachers’ Development

**Shift of teachers’ qualification**: Pedagogical content knowledge (PCK) → Technological PCK (TPCK)

**ICT for Pedagogical Transformation** (Enabling & managing **deeper learning through ICT**)
- Autonomous Professional Learning Skills
- Creation of LMS, interactive tools, gaming

**ICT for Pedagogical Innovation** (Facilitating students learning with and/or through ICT)
- Designing ICT enabled lesson plans and digital materials, creating pedagogically proper learning environment
- Specific learning tools, Web 2.0 Mind Mapping; WebQuest

**ICT Integration in subject teaching** (Teaching **with ICT**)
- Integrating ICT in lesson planning; Use of multimedia tools
- ICT-based Generic Pedagogical Skills (Conceptual learning, organization of ideas, tele-collaboration)

**Teachers’ Learning about ICT**
- Teachers experience good pedagogy as a student
- Enhancing daily life, teaching, and traditional management using ICT

**Technological Pedagogy**
- Productivity tools
- Internet (information searching & online community); E-mail

**Subject & Professional Competencies**
- Authoring tools
- Multimedia tools

**ICT Competency**
- Enabling blended learning environment
Four stages of Teachers’ Development on ICT-pedagogy Integration

(a) Stages of ICT usages
- Becoming aware of ICT
- Learning how to use ICT in subject teaching
- Understanding how and when to use ICT
- Specializing in the use/design of ICT

(b) Pedagogical Usages of ICT
- Applying productivity tools
- Enhancing traditional teaching
- Facilitating blended learning within or across subject areas
- Creating & managing ubiquitous & interactive e-learning environments

ICT Transforming Education: A Regional Guide (UNESCO Bangkok)
3. Teacher Training: Institutional Strategy

Why Institutional Capacity of TEIs?

- Why pre-service teachers prioritized: More and more non-ICT-qualified new but not next-gen teachers are supplied to schools
- Are teacher education institutions ready to prepare the next generation of teachers who can apply ICT effectively?
  - A survey by UNESCO Bangkok:
    - Lack of institutional leadership and policy support
    - Teacher educators are lack of skills and technical support
    - Curriculum are out-of-date or insufficient
What’s the Institutional Capacity of TEIs

The institutional capacity is a systemic capability of coordinating internal elements toward the destination illuminated by a visionary leadership, and of assimilating external resources or adapting itself to contextual changes during its evolitional process.
What’s the Institutional Capacity of TEIs

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Where TEIs are:
- Current situation
  - Training content
  - Trainers

Where to go?
- Vision & Standards
- Institutional policy
- Plan & strategy

The diagram illustrates the following:
- Curriculum
- Leadership
- Instructors' Capacity
- How e-ready
  - Training content
  - Trainers
UNESCO Next Generation of Teachers Project: Building the institutional capacity of the TEIs in designing and providing the training on ICT-integration for pre-service teachers → Over 50 TEIs from 16 countries

- Curriculum Development Workshops and follow-up technical assistances
- Dean’s Forums
  - Institutional evolution
  - Broadening to other TEIs
  - Scaling up to national policy
- Capacity building workshops for teacher educators
- Where TEIs are: Current situation
- How e-ready
  - Training content
  - Trainers
- Leadership
- Instructors' Capacity
Main deliverables of UNESCO in building institutional capacity of TEIs

I. Dean’s Forum

II. ICT-pedagogy Integration

III. Curriculum Development

IV. KFIT Project based learning and telecollaboration

MOE

Other TEIs

Inter-TEIs cooperation

Peer Coaching

Local schools

TEI-School partnership
# I. Dean’s Forum

**Objectives**

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<tr>
<th>Setting vision; Building leadership, Action planning</th>
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<tr>
<th>Thematic or in-depth Dean’s Forum</th>
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<tbody>
<tr>
<td>• Thematic discussion and experience sharing</td>
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<th>National Forums or inter-TEI exchange</th>
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<tr>
<td>• Local follow-up</td>
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<td>• Institutional actions</td>
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<tr>
<th>1st Regional Dean’s Forum</th>
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<tr>
<td>• Systematic vision</td>
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<tr>
<td>• Training on leadership</td>
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**Example of results achieved**

**Institutional Policy**

From: Filomena Dayagbil

ftdayagbil@yahoo.com

I am Filomena T. Dayagbil, Dean of the College of Teacher Education of Cebu Normal University (CNU). We have institutionalized our ICT training for graduating Education students in the university. For the past two years, all 4th year Education students (600 students every year) cannot graduate without undergoing the training on ICT integration into teaching and learning.
II. Workshop on ICT-pedagogy Integration

- A 5-day workshop for teacher educators on ICT-pedagogy integration
  
  - Effective (training) strategies on how to use ICT into different pedagogy: Pedagogical principles, supporting examples, appropriate tools, etc.
  
  - Hands-on practices of ICT-based unit/lesson design
  
- Achievement: 13 national Workshops on ICT-pedagogy Integration have been organized
ICT-pedagogy Workshop

- ICT-pedagogy integration model
- Suggested training content and methodology
- TPCK

Overview

ICT in expository based learning
- Pedagogical principles supported by lesson videos
- Useful pedagogical techniques
- Relevant ICTs
- Lesson design

ICT in inquiry based learning
- Pedagogical principles supported by lesson videos
- Useful pedagogical techniques
- Relevant ICTs
- Lesson design

Individual resources based learning
- Pedagogical principles supported by lesson videos
- Useful pedagogical techniques
- Relevant ICTs
- Lesson design

ICT in cooperative learning
- Pedagogical principles supported by lesson videos
- Useful pedagogical techniques
- Relevant ICTs
- Lesson design

- Starting from what they can do what they need to do
- Practicing “pedagogy-in-use”
- Gaining confidence by self-achievements
Training FRAMEWORK on ICT-pedagogy integration

**Introduction**
- Expository based learning
- Inquiry based learning
- Individual learning
- Cooperative learning

**Pedagogy Content Knowledge**
- PBL on pedagogy:
  - Learning theory background;
  - Key concepts;
  - Key features
  - What ARE & ARE NOT Practical knowledge
- General principles and showcases
  - Key points showing relative advantage ICT for pedagogy
- Suggestions and principles
- Scenarios to read and analyze
  - Analyze their appropriateness, effectiveness, and efficiency
  - Connected to real context

**ICT-facilitated**
- Further quest:
  - Key problems or key concepts
  - Resources

**Hands-on Instructional Design**
- Put all together
  - For what?
    - Content and objectives
  - To whom?
    - Student Ana.
  - Match of ICT & pedagogy:
    - ICT-amplified existing ones & ICT-empowered emerging ones.
  - Design and provision of ICT
    - Select; combine compile; create
III. Curriculum Development

- Objectives: Building capacity in ICT-related course development
- Expected results: Existing training courses on ICT updated or new ones developed and authorized
- Activities: Curriculum-development workshops followed by technical assistances and wrapped up by curriculum authorization
### Main Categories of ICT-related Training Courses in TEIs

<table>
<thead>
<tr>
<th>Decision you need to make (authorization &amp; resources)</th>
<th>Main Curricular AREAS</th>
</tr>
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<tbody>
<tr>
<td><strong>A. Educational Technology</strong></td>
<td><strong>E. ICT-subject teacher training courses ...</strong></td>
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<tr>
<td>non-computer</td>
<td><strong>B. ICT in Subjects</strong></td>
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<tr>
<td>computer-based</td>
<td>subject tools</td>
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<tr>
<td>Other media</td>
<td>courseware</td>
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<tr>
<td></td>
<td>design</td>
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<tr>
<td></td>
<td>lesson design</td>
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<tr>
<td><strong>1. Develop a new course</strong></td>
<td><strong>C. e-learning</strong></td>
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<td></td>
<td>Focusing on design &amp; development of online environments</td>
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<tr>
<td><strong>2. Upgrade the content</strong></td>
<td><strong>D. ICT-pedagogy integration</strong></td>
</tr>
<tr>
<td></td>
<td>Focusing on pedagogical design</td>
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<tr>
<td><strong>3. Promote methodology</strong></td>
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- [ ] 1. Develop a new course
- [ ] 2. Upgrade the content
- [ ] 3. Promote methodology
Specialization in Educational ICTs

- Instructional Website Design & Programming
  - Compulsory for Subject of Computer Science
- Didactical Game Development
- Application of Virtual Reality Technique in Education
- Creation of 3-D Animation in Education
- Webquest & Online Learning

ICT across Subjects

- Application of ICT across Subjects
  - Elective for all subjects at any grade years
- ICT-pedagogy Integration
  - Elective for all subjects at any grade years

ICT in Subjects – Grade Year 3

- Microteaching Practical Training
- Instructional Design & Practice on ICT in Teaching
- Application of Multimedia in Edu.
- Application of Teaching Media
- Graphic Design of Educational Media
  - Elective for all

ICT Literacy – Grade Year 1

- Computer & Information Literacy
- Word, PowerPoint, Excel...

ICT-related Teacher Training Courses – East China Normal University
Collective school-based professional development

- Objectives: Training of (master) trainers on ICT-pedagogy integration → peer coaching and institutional trainings
- Activities: 2 Peer Coaching workshops covering >60 master teacher educators
- Results: Peer coach adopted by TEIs training localized

Promoting Peer Coaching to Sustain School-based Professional Development
Thank you...

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