A Recent Trend of Teacher Professional Development for ICT in education in Korea

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Overview of Teacher Professional Development for ICT in Education
General Status of ICT in Education in Korea

- From 1996 EDUNET to 2013 digital textbook & SMART Education
- Well-readiness of infrastructure, teachers, and students
  - Number of Students per PC

Source: MEST & KERIS (2012), p.5
<table>
<thead>
<tr>
<th>Year</th>
<th>ICT Environment and Training Policies</th>
<th>Training Direction</th>
<th>No. of Teachers Trained</th>
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</table>
| ’88~’95 | -1988, supplied PCs (XT)  
-1995, supplied 32-bit PCs  
-Training school CEOs and professionals (KEDI) | -Developed basic ICT skills  
-Facilitated teachers’ development of multimedia materials and use of the internet | 260,000 |
| ’96~’00 | -1997, Planned 1st phase of ICT teacher training  
-2000, Built infrastructure for ICT in primary and secondary schools | - Training over 25% of teachers annually  
-Ensured teachers’ abilities in the use and production of educational contents and materials | 340,000 |
| ’01~’05 | -2001, Planned 2nd phase of ICT teacher training  
-Trained supervisors/ICT master teachers | - Training over 33% of teachers annually  
-Transformed training objective from education in ICT literacy to ICT use | 580,000 |
| ’06~ | -2006, Establishing e-learning quality assurance center (QAC)  
-Enhancing global cooperation for ICT teacher training through collaboration with global IT companies | -Building ICT training based on teachers career experience  
-Facilitating teachers’ integration of ICT into schools | In Progress |

Source: Hwang, Yang, & Kim (2012)
- **MEST**: Ministry of Education (MOE)
  - Master Plans, financial support

- **KERIS**: Korea Education & Research Information Service
  - Develops ICT teacher training programs
  - Supports MPOEs in ICT teacher training (training teacher trainers)
  - Analyzes results of ICT teacher training

- **MPOEs**: Metropolitan & Provincial Offices of Education
  - Secure ICT teacher training budget
  - Conduct ICT teacher training

17 MPOEs
Recent Trend of Teacher Professional Development for Digital Textbook & SMART Education
What makes teachers’ roles changed?

- Education in global mega trend
  - 21st century skills

- Education in general in Korea
  - Revised national curriculum (creative, flexible, adaptive, etc.)
  - New government’s educational policy

- ICT in education in Korea
  - SMART Education
  - Digital textbooks
What is SMART Education?

“SMART Education is an education system is designed to strengthen the capabilities of 21st century’s learners by offering an intelligent and customized learning solution. SMART aims for a driving force that will innovate the education system including education environment, method and evaluation. As the initials of SMART indicate, it is self-directed (learning attitude), motivated (interest), adaptive (aptitude and ability), resource enriched (plenty of learning materials) and technology embedded (ICT utilization).” (MEST, 2011, p. 6).
Some Policy Initiatives for SMART Education

- Development and application of digital textbooks
- **Strengthening teachers’ capabilities for implementing SMART Education**
- Securing high quality educational content and promotion of its availability
- Development of teaching and learning models
- Revitalization of online classes and establishment of online assessment system
- Establishment of the foundation for a cloud-based education service
- Reinforcement of education on ICT ethics to resolve ICT-related side effects

“SMART Education promotes teachers to change their traditional roles!”
Digital Textbooks in Classroom
Digital Textbooks

Schematic Diagram of e-Textbook and Digital Textbook, 29

- 2011: e-Textbook
  - CD
    - Converting Paper Textbooks into PDF format, Distribution through CDs
- 2012: Improvement of Correction Comments and Multimedia Functions & Online Web Service Format
- 2013: SMART Education Digital Textbook
  - SMART Devices
- 2014: Development and Distribution of Digital Textbooks enabled by Cloud-based Integrated Platform
- 2015: e-Textbook will be used not as a replacement for a paper textbook but as a supplementary textbook

Source: MEST & KERIS (2012), p.29
Therefore, changing roles of teachers to: As~

- Learning environment designer
- Learning Facilitator
- Design & Learning Researcher

Top-down and bottom-up approaches combined

- competency-based training curriculum (top-down)
- Teacher-led community, training, and research (bottom-up)
Promoting teacher-led development

- Development Plan of Smart Education Teacher Capacity Development

<table>
<thead>
<tr>
<th>Year</th>
<th>Plan</th>
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<tbody>
<tr>
<td>2012</td>
<td>• Annual SMART Education Training for 25% of all Teachers</td>
</tr>
<tr>
<td></td>
<td>• Enhancement of Facilities of Training Center</td>
</tr>
<tr>
<td></td>
<td>• Distribution of Smart Devices to Teachers, etc.</td>
</tr>
<tr>
<td>2013</td>
<td>• Development and Propagation of SMART Education Research Courses &amp; Program for Teachers</td>
</tr>
<tr>
<td></td>
<td>• Central and Metropolitan and Provincal Pioneer Teacher Training</td>
</tr>
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</table>

Source: MEST & KERIS (2012), p.25
Overview of Teacher PD

- Various approaches to teacher capacity building for SMART Ed. & Digital textbooks

<table>
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<tr>
<th>Year</th>
<th>PD programs</th>
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</thead>
<tbody>
<tr>
<td>2011</td>
<td>- Selected 100 nationwide pioneer teachers (NPTs)</td>
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</table>
| 2012 | - Trained NPTs  
     - Organized NPTs’ SNS-based community  
     - Organized SMART Ed. Research community at the MPOE level  
     - Selected & trained MPOE-level pioneer teachers (MPTs)  
     - Expanded MPOE-level SMART Ed. Research community  
     - Implemented SMART Ed. Concerts with the private sector  
     - Implemented School Visit Training Programs  
     - Selected nationwide pioneer teachers (NPTs) for 2013  
     - Developed SMART Education training certification system by KERIS |
| 2013 | - Trained 2013 NPTs  
     - Hosted the conference on lesson design for SMART Ed. in the format of training  
     - Trained school CEOs for SMART ed.  
     - Trained research department head teachers of digital textbook model schools  
     - Selected & Trained MPOE-level instructors (teachers)  
     - Implemented training programs digital textbooks at the MPOE level |
A Case: Teacher Competency-based Curriculum for SMART Education
Case Overview

❖ Background
  – Teacher capacity building is essentially important for successful SMART Education in schools
  – Top-down & Bottom-up-combined approach is needed

❖ Purpose
  – To develop the teacher training plan at the national level through developing the teacher’s competence-based curriculum and training modules for teachers’ SMART Education

❖ Procedure
  – Preparation for developing the competency model
  – Development of the teacher’s competency model for SMART Education
  – Development of the competency model-based training modules
  – Development of the competency model & module-based training curriculum

9 teacher’s competency model

28 training modules

Training curriculum roadmap
Focus of the teacher’s competency model for SMART Education

- SMART ed.-related teacher work rather than general teacher’s competency
- Competency which can be observed after training rather than the one required the long time experience and development (e.g., creativity)

Methods for development

- Literature review, behavioral event interviews, and expert review
### Teachers’ Competence Model for SMART Education

- **4 areas, 9 competences, and 29 behavioral indexes**

<table>
<thead>
<tr>
<th>Area</th>
<th>Competence</th>
<th>Definition and Behavioral Index</th>
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<tbody>
<tr>
<td>Basic</td>
<td>1. Understanding of future education</td>
<td>Ability of understanding and applying future education and smart education to school practices</td>
</tr>
<tr>
<td></td>
<td>2. Participation in digital ecosystem</td>
<td>Ability of understanding and participating in smart culture in the digital society</td>
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<tr>
<td></td>
<td>3. Practice of Information ethics</td>
<td>Ability of understanding and applying the relevant ethics related smart technologies</td>
</tr>
<tr>
<td>Lesson Preparation &amp; Implementation</td>
<td>4. Thinking based on learners</td>
<td>Ability of understanding and applying learners’ digital culture and learning habits to teaching practices</td>
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<tr>
<td></td>
<td>5. Redesign of regular curriculum for SMART Education</td>
<td>Ability of implementing school curriculum for SMART Education in an appropriate way.</td>
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<tr>
<td></td>
<td>6. Design of learning environments for SMART education</td>
<td>Definition: Ability of designing SMART learning environments by integrating learner competence, content, method, and technology</td>
</tr>
<tr>
<td></td>
<td>7. Assessment of SMART Education</td>
<td>Ability of understanding and implementing the purpose, item, and method of assessment for both learners and design in SMART Education</td>
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<td></td>
<td>8. Implementation of effective SMART education class</td>
<td>Ability of implementing lessons effectively through the educational methods and technologies of SMART Education</td>
</tr>
<tr>
<td>reflection</td>
<td>9. Professional development by self and community</td>
<td>Ability of continuously developing expertise through both reflection on teaching and participation in communities</td>
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Development of the Competency Model-based Training Modules

- **Training module**
  - Basic training unit, consisting 4 more or less hours
  - Like Lego block, can be combined for various training programs based on various field situations
  - Also, connected to teacher’s competency-based model for SMART education to assure the development of teacher’s competency

- **28 training modules developed**
  - Example: Module 1. Future education and new teacher’s roles (related to competency. 1.1.1 & 1.1.2)
Development of training curriculum

- Development of the competency model & module-based training curriculum
  - As guideline, the model curriculum, consisting of 7 standardized courses in terms of level and theme developed
  - (By level) Basic, Intermediate, and Advanced Course
  - (By theme) SMART Education: Get Started; SMART Education: Essential; Design of Learning Environment for SMART Education; and SMART Education: Topical Seminar

- Through this approach, the benefits from both top-down and bottom-up approaches for developing training programs can be expected
Conclusion

- Changing needs for education require changing roles of teachers
  - Knowledge society, school curriculum, & digital textbook and SMART Education
  - Teacher as designer, facilitator, & researcher

- Changing roles of teachers also require changing approaches to teacher professional development
  - Top-down & bottom-up combined approach for flexible and empowered implementation by teachers and schools
Thank you!

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