Korea’s Strengthening Teacher’s ICT Competency

Yoon Kyung Jung, KERIS
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02. Studies on Strengthening Teacher's ICT Competency
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04. Achievements of Policy Implementation to Strengthen Teacher's ICT Competency
05. Future Agenda
01. **Background to Implementing ICT in Education and Its Directions**

Changes in Educational Environment with the Development of ICT
ICT in Education to Strengthen 21st-century Learner Competency
Needs for Strengthening Teacher’s ICT Competency
Changes in Educational Environment with the Development of ICT

Change in Technology
- Smart technology for life
- Connected/Always-on
- Portable/Private
- Collaborative/Communicative

Change in Learner
- Digital Natives
- Familiar with devices
- Sharing & record via devices
- Active participation

Change in Society
- Knowledge and information-based society
- Creation and sharing of knowledge using information
- Abilities of information processing and generation
Policy Implementation for ICT in Education

- Built Infrastructure: 1970
- Education of Computer and Internet: 1996
- ICT in Education: 2000
- Facilitated ICT: 2004
- Enhanced Services: 2011
- Implementation of SMART Education: 2011
- Development & Active Use of Digital Textbooks: 2013
Implementation of SMART Education

Not a simple use of ICT devices but preparatory education for the 21st century and intelligence-type customized teaching and learning to bring changes in educational contents, methods and evaluation, and environment.

- **Self-directed**
  - Self-directed manner

- **Motivated**
  - With fun

- **Adaptive**
  - Suited for student’s levels and aptitude

- **Resource-enriched**
  - Rich materials

- **Technology-embedded**
  - Learning by using ICT
Making an Ecosystem of Smart Education for Training Creative Talented Individuals

Learning System Using Digital Textbook

Teachers

Students

Parents

Cloud Service for Education

Network

Device

Platform

Contents of Digital Textbooks

Learning Management

Learning Community

Creative Personality Education

Communication and Cooperation in Classes

On Information Communication Ethics

Supplementary Learning Material

Portfolio

Online Participation Classes

Online Assessments as Customized Learning Support

Assessment Items

Critical Thinking

Supplementary Learning Material

Private Participation

Agreement between Parents and Communities

Teachers' Competency
What is Digital Textbook?

Teaching-learning material which contains various types of latest information provides learning support tools & assessment materials enables learning diagnosis & management helps expansion of learning information & experiences.
What is Digital Textbook?

Since March 2014, digital textbooks for social studies and science have been provided for grades 3 and 4/grade 7.

Under distribution and pilot application centered on 163 digital textbook research schools, teacher learning communities, and leading teachers.

Learning Support/Facilitation Functions:
- Note-taking, memo, bookmark
- Multimedia functions
- Reference function
- Hyperlink function
- Learning dictionary function

Learning Assessment/Management Functions:
- Connection with assessment tools
- Provide supplementary/advanced learning materials by level
- Manage learner portfolio
- Diagnose learner’s learning progress/levels

Interaction & Link Functions with Various Information Resources:
- Communication and sharing through Wedorang
- Link to diverse external learning material database
Needs for Strengthening Teacher's ICT Competency

Overriding Agenda to Promote ICT in Education

= Strengthening Teacher’s ICT Competency

Korea has taken strengthening teachers’ ICT practice competency as one of key agenda of strategies for implementing ICT in education and has accordingly implemented support programs.
02. Studies on Strengthening Teacher’s ICT Competency

Development & Distribution of Teacher Competency-based Training Programs & Online Diagnostic Tools for Teacher Competency
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”
Development & Distribution of Teacher Competency-based Training Programs

Development of 28 Training Modules

Modules are like small Lego blocks, consisting of basic content units of training programs. Diverse training programs can be operated by combining modules by level or by theme considering training targets, directions, and time.

- Concept of future education & teacher’s role
- Participating in digital ecosystem
- Building rapport with learners through SMART education
- Learning smart learning tools
- Self-directed intelligence-type customized learning design
- SMART education design for outside the school
- Strategies for implementing & facilitating SMART lessons
- Concept of SMART education
- Class observing copyrights
- Organize creative SMART education programs
- SMART learning environment design
- Using digital textbooks
- Features & methods of SMART education assessment
- Method of monitoring learning process
- Teacher competency for the practice of SMART education
- Information & communications ethics
- Constitute primary theme-centered SMART curriculum
- Collaborative learning design for communication
- Immerging into the sea of SMART content
- Learning process-centered evaluation for 21C competency
- How to cope with problems in SMART class
- Understanding 21C learner competency & strategies for promoting the competency
- SMART lesson design for digital native
- Curricular plan by SMART education level
- Learning design for lively experience
- Comprehensive design for school SMART education system
- SMART education & on-site studies
- Constant cultivation of expertise for SMART education

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Overview of Module Content Composition

Each module is composed of 1) the purpose of module/2) teacher competencies promoted by this module/3) learning objectives/4) ways to use by level and by school level/5) educational contents of module by lesson period/6) educational methods/7) used tools/8) references/9) evaluation methods/10) training environment/11) information on instructor.
### Teacher Competencies

<table>
<thead>
<tr>
<th>Foundations</th>
<th>Practice competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative problem-solving</td>
<td>Understanding of future education</td>
</tr>
<tr>
<td>Social ability</td>
<td>Contents expertise</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Building relationship with learners</td>
</tr>
<tr>
<td>Technology literacy</td>
<td>Instructional design &amp; development</td>
</tr>
<tr>
<td>Ethics</td>
<td>Building learning affordance</td>
</tr>
<tr>
<td>Passion</td>
<td>Evaluation &amp; reflection</td>
</tr>
</tbody>
</table>

### Teacher Training Modules for SMART Education

<table>
<thead>
<tr>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Concept of future education &amp; teacher’s role</td>
</tr>
<tr>
<td>2</td>
<td>Concept of SMART education</td>
</tr>
<tr>
<td>3</td>
<td>Teacher competency for the practice of SMART education</td>
</tr>
<tr>
<td>4</td>
<td>Understanding 21C learner &amp; strategies for promoting competency</td>
</tr>
<tr>
<td>5</td>
<td>Participating in digital ecosystem</td>
</tr>
<tr>
<td>6</td>
<td>Class observing copyrights</td>
</tr>
<tr>
<td>7</td>
<td>Information &amp; communications ethics</td>
</tr>
<tr>
<td>8</td>
<td>Smart lesson plan for digital native</td>
</tr>
<tr>
<td>9</td>
<td>Building rapport with learners through SMART education</td>
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<tr>
<td>10</td>
<td>Organize creative SMART education programs</td>
</tr>
<tr>
<td>11</td>
<td>Constitute primary theme-centered SMART curriculum</td>
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<td>Curricular plan by SMART education level</td>
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<td>Learning smart learning tools</td>
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<tr>
<td>14</td>
<td>SMART learning environment design</td>
</tr>
<tr>
<td>15</td>
<td>Collaborative learning design for communication</td>
</tr>
<tr>
<td>16</td>
<td>Learning design for lively experience</td>
</tr>
<tr>
<td>17</td>
<td>Self-directed intelligence-type customized learning design</td>
</tr>
<tr>
<td>18</td>
<td>Using digital textbooks</td>
</tr>
<tr>
<td>19</td>
<td>Immerging into the sea of SMART content</td>
</tr>
<tr>
<td>20</td>
<td>Comprehensive design for school SMART education system</td>
</tr>
<tr>
<td>21</td>
<td>SMART education design for outside the school</td>
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<tr>
<td>22</td>
<td>Features and methods of SMART education assessment</td>
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<tr>
<td>23</td>
<td>Learning process-centered evaluation for 21C competency</td>
</tr>
<tr>
<td>24</td>
<td>SMART education and on-site studies</td>
</tr>
<tr>
<td>25</td>
<td>Strategies for implementing and facilitating SMART lessons</td>
</tr>
<tr>
<td>26</td>
<td>Method of monitoring learning process</td>
</tr>
<tr>
<td>27</td>
<td>How to cope with problems in SMART class</td>
</tr>
<tr>
<td>28</td>
<td>Constant cultivation of expertise for SMART education</td>
</tr>
</tbody>
</table>
### SMART Education Training Programs (Proposal by Level)

Various training programs can be formed through a combination of 28 modules. This study developed a proposal for 7 training programs by level (3) and by theme (4).

<table>
<thead>
<tr>
<th>Level</th>
<th>Category</th>
<th>#</th>
<th>Training program name</th>
<th>contents</th>
<th>time</th>
<th>Applicable modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>Beginner</td>
<td>1</td>
<td><strong>Beginner</strong> level of SMART education</td>
<td>Intended for teachers who begin to implement SMART education Consists of basic courses for instructional design and implementation based on the general understanding of SMART education</td>
<td>45</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 18, 19, 22, 23, 25, 26, 27</td>
</tr>
<tr>
<td>Intermediate</td>
<td>Intermediate</td>
<td>2</td>
<td><strong>Intermediate</strong> level of SMART education</td>
<td>Targeted for teachers who completed beginner-level training or who scored above the intermediate level from the competency diagnosis of SMART education Composed of the application of prior knowledge of SMART education to overall teaching process, including instructional design, implementation and assessment</td>
<td>45</td>
<td>2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27</td>
</tr>
<tr>
<td>Advanced</td>
<td>Advanced</td>
<td>3</td>
<td><strong>Advanced</strong> level of SMART education</td>
<td>Targeted for teachers who are at the levels of SMART education leading teachers Comprises courses useful for teachers as leaders of change in disseminating SMART education to school field</td>
<td>45</td>
<td>2, 3, 4, 6, 7, 10, 11, 12, 13, 15, 16, 17, 18, 20, 21, 24, 28</td>
</tr>
</tbody>
</table>
# SMART Education Training Programs (Proposal by Theme)

<table>
<thead>
<tr>
<th>Category</th>
<th>#</th>
<th>Training program name</th>
<th>Contents</th>
<th>Time</th>
<th>Applicable modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4</td>
<td>Proper Beginning of SMART Education</td>
<td>Consists of practical contents applicable from the position of beginning SMART education, including learning environment design using devices, instructional design using various types of content, and coping with problematic situation during class</td>
<td>15/30</td>
<td>1, 2, 3, 4, 6, 7, 13, 14, 18, 19, 22, 27</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>Selective Listening to Core Contents Only for SMART education</td>
<td>Composed of contents useful to effectively perform learning design, lesson implementation, assessment based on the understanding of SMART education and 21C learner competency</td>
<td>45</td>
<td>2, 3, 4, 14, 15, 16, 17, 18, 19, 22, 23, 25, 26, 27</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Designing SMART Education Learning Environment</td>
<td>Consists of contents helpful to foster instructional design ability according to learning environment, monitoring of learning process and feedback, and process-based evaluation</td>
<td>30</td>
<td>14, 15, 16, 17, 18, 19, 22, 23</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>Special Lecture on SMART Education by Theme</td>
<td>Each module is the division of SMART education training contents by basic units. A separate module can be used for a less-than-one-day special lecture training</td>
<td>Each module unit</td>
<td>All modules</td>
</tr>
</tbody>
</table>

Recommended training program proposal for using in the leading teacher training courses

[Image of the Keris logo]
Development & Distribution of Online Diagnostic Tools for Teacher Competency

Web- & Mobile-based Online Diagnostic Tool Service

Used as tools for systematic and continuous diagnosis, management and development of teacher competency

Check personal scores by competency

Compare with one’s own past scores

Compare with other’s scores

Same school level, gender, career, subject in charge, working area

Feedback for necessary competency development

Provided with necessary educational contents and directions for self-development
03. Policy Implementation to Strengthen Teacher's ICT Competency

- Fostering Leading Teachers for SMART Education and Digital Textbooks
- Development and Distribution of Collective and Online Training Programs
- Operation of Teacher Learning Communities
- Operation of Teacher Training Information Service
- Information Exchange through Diverse Media
Policy Implementation to Strengthen Teacher’s ICT Competency

Fostering Leading Teachers for SMART Education & Digital Textbooks
Conducted training of central-level leading teachers
Fostered about 800 leading teachers since 2012
Performed lectures & consulting activities on lesson plans using SMART education & digital textbooks

Operation of Teacher Learning Communities
Supported more than 50 TLCs
Distributed successful cases to the field, through voluntary studies and activities, including workshops, seminars, case presentations, open class, training & consulting

Information Exchange through Diverse Media
Collected opinions and shared information using SNS

Development & Distribution of Collective & Online training programs
SMART education training modules, detailed proposals
Digital textbook training materials, guides for instructors
SMART education distance training content
Digital textbook distance training content

Operation of Teacher Training Information Service
Collected & managed training information scattered over public and private sectors
Support training information search by school level, training periods & institution name
Customized training information services
04. Achievements of Policy Implementation to Strengthen Teacher's ICT Competency
Laying the Ground for ICT in Education to Take Root in the Field and Its Active Use

KERIS
Fosters leading teachers
Develops & distributes training programs
Supports teacher’s voluntary studies & activities
Supports information exchange & collaboration

Provincial & Municipal Offices of Education
Conduct training customized to the needs of the field
2012-April 2014
About 243,000 teachers

Training for Nurturing Provincial & Municipal Leading Teachers

CEO Training, Including School Principals
SMART Education Concerts

Outreach Training at Schools & District Offices of Education

Operation of Distance Training
05. Future Agenda
Future Agenda for Strengthening Teacher's ICT Competency

**Increased Needs for Strengthening Teacher’s ICT Competency**

With the distribution of digital textbooks in 2014, active efforts are now required to expand a consensus on the promotion of digital textbooks and raise awareness.

- **Diversify Training**
  - Depart from conducting government-led training, create teacher’s voluntary study culture, & support to implement diverse forms of training according to the needs of teachers in the field.

- **Strengthen Council & Community Services**
  - Further strengthen council and community services for exchanging opinions and sharing outcomes to promote ICT in education.

- **Improve Overall ICT Teacher Training System**
  - Improve the training operating system to reinforce teacher’s ICT competency, including prospective teachers.
Thank you

jyg@keris.or.kr