Three Steps from Conventional Teaching to Distance Learning in Teacher Education

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Conceptual issues to be discussed

• A Framework suitable to accommodate ICT in teacher education

• Four factors as simplified school education
  - Educational philosophy, Ideals, Aims
  - Teachers' competency,
  - Educational reality, Families, Community
  - Constraints

• Five principles for On-line learning
  - ACCRR model (Autonomy, Collaboration, Contribution, Responsibility and Respect)

• Six components for learning plans and material development
  - MACETO module (Meaning, Activities, Contents, Environment, Tools and Outcome)
Technical topics to be discussed

• New style of Lesson Plan suitable to ICT
  - MACETO module for structural description of the learning
  - Platforms for sequential development of the learning

• Images and models for graphic representation of lesson plan

• Propositions translatable into international language (Japanese vs. English)
From theory and its application
To studies on reality and theory

• Simplified models of school education
  - Students have their experiences in elementary and secondary schools as learners already
  - They feel hard to start from reflection on teaching
  - They have their images on school life, teachings and teachers

• Starting from images to models to describe their ideas on teaching
Lecture: ‘Introduction to Instructional Technology

(1) Conventional lesson
   Friday  4:10-5:40
   Number of students: 228
   Capacity of lecture room: 300

(2) Computer laboratory lesson
   Friday  10:40-12:10
   Number of students: 78
   Capacity of laboratory: 93

(3) On-line learning at distance
   At planning stage for next year
Lecture (large group)

Prerequisite knowledge and skills

Contents of lecture

Learning outcomes

Learning activities

Test or report

Skills

Assessment of outcomes
Practicum (small group)

Contents of practice

Learning outcomes

Learning activities

Assessment of Outcomes

Prerequisite knowledge and skills

Skills

Report
Theme: To design a virtual school and develop a lesson plan for this school.
Four factors influencing school education

- Contrain: Total time of learning, Educational budget, Number of children in a class, Size of school, Instructional equipment, Size of classroom and configuration, etc.
- Values/Expectations: Active learning, Creative education, Right of learning, Eradication of discrimination, etc.
- School Education
- Teachers' competency: Designing lessons, Performances, Analysis of teaching, Understanding children, Decision making, judgment, etc.
- Reality: Family environment, Life planning, Communities, Local environment, Life history, Intelligence, Physical conditions, Special talents, etc.
Synthesis \rightarrow Teaching / Learning \rightarrow Analysis

Image \rightarrow \text{imagination} \rightarrow \text{Synthetic concept}

Category \rightarrow \text{reflection} \rightarrow \text{Analytic concept}

Model \rightarrow \text{Proposition}

Research Procedure on On-line Learning

Knowledge Production

Images, Categories, Models

MACETO Modules (Propositions)
MACETO Module

MACETO Module (Structural)

M: meaning
O: outcome
A: activities/actions
T: tools
C: contents
E: environment

MACETO Module (Sequential)

L01: Introduction
L02: Virtual school
L03: Development of virtual lesson
L04: Report and evaluation
L05: Orientation/self-introduction/survey
L06: Concept of new school
L07: Team composition
L08: Expression of new school using PowerPoint
L09: Right of Learning/Plan of learning condition
L10: Plan of virtual class teaching using images
L11: From images to models
L12: Strategy of Whole Instruction

Writing of final report and evaluation
MACETO Module (Structural)

M: meaning
O: outcome
A: activities
T: tools
C: contents
E: environment
Learning

MACETO Module (Structural)
Starting from Images

Teaching

Examination

Homework

Friendship

Favorite subject

Hated subject

Enjoy learning
Keywords and graphic presentation for modeling

Group

Discussion

Panel presentation

Outcomes

Learning

Report

Teacher

Students

Group

Panel presentation
From Images to Models
The First Step

Conventional lesson
Friday  4:10-5:40
Number of students: 228
Capacity of lecture room : 300
Design of learning space

Out of classroom
(Library, computer lab, tearoom)

Physical configuration of classroom

Conceptual model of classroom

Wall for display

Group

S: Student
T: Teacher
How can schools collaborate each other?

A School District

Poster presentation

School
School
School
School
School
School
School
modeling

Poster presentation

Implementation

School School School School School
Model for creating a lesson plan

Model for product oriented group work
Examples of Modeling

Group

Learning

Product

Outcome

Activities

Environment

Contents

Meaning

Tools

Learning

Reference materials

Poster

Session

Work with cards

Report

Poster presentation

School

School

School

School

School
The Second Step

Computer laboratory lesson
Friday  10:40-12:10
Number of students: 78
Capacity of laboratory: 93
Group Configuration in Computer Laboratory
The Third Step

(1) School-Based Curriculum Development at Distance

- To implement the organizational curriculum development at school
- To keep the distance learning at Master Degree level

(2) Ubiquitous Network at Remote Area
Ubiquitous Network

• Ubiquitous Network is a new concept developed by a group of Nomura Research Institute

• Cellular phone, PDA (Personal Data Assistant) and other personal equipment are connected by broadband wireless

• People are free from any wire to communicate each other at distance

• 'Bluetooth' technology is one of new broadband technologies
Learning in group

Group

Communication oriented

Product oriented
Teaching-focused instruction

Instructional goals

Learned competency & contents

Instructional goals

Learned competency & contents
Teachers’ guidance and supports

Meaning of learning

Contents to be learned

Planning of learning

Learning-focused instruction

Learning environment

Learning tools/materials

Learned competency & contents

Outcome of learning

Portfolio
Teaching-focused instruction

Instructional goals
Meaning of learning
Contents to be learned
Learning environment
Learning tools/materials
Planning of learning
Outcome of learning
Assessment
Portfolio

Learning-focused instruction
Suggestions from these lessons

Five Principles (ACCRR) for Group learning
- Autonomy
- Collaboration
- Contribution
- Responsibility
- Respect

Integration of Group and Personal learning

Four Steps for knowledge production
- Imagination
- Modeling
- Implementation
- Reflection
  - tacit knowledge
  - models
  - modules (MACETO+sequence)
  - propositions, if possible
  - empirical laws on instruction