TCL　　　　　　　　　　**CRL**

E-Learning:
A Nova Education Evolution;
Development and Evaluation

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Outline

- Objective
- Collaboration
- WBT System Overview
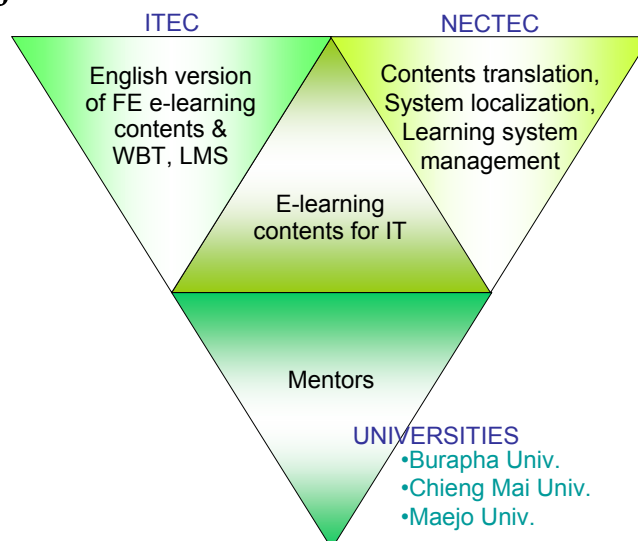- Implementation
- Evaluation
- Conclusion

TCL CRL

Evaluation of the effectiveness in using e-learning contents for IT examination in Thailand

Objective

- Evaluating the e-learning contents for Fundamental IT Professional Examination Program
- Providing an experimental e-learning infrastructure to promote information technology professional examination in Thailand
- Supporting the future development of e-learning contents

Project Collaboration

ITEC

English version of FE e-learning contents & WBT, LMS

NECTEC

Contents translation, System localization, Learning system management

E-learning contents for IT

Mentors

UNIVERSITIES
- Burapha Univ.
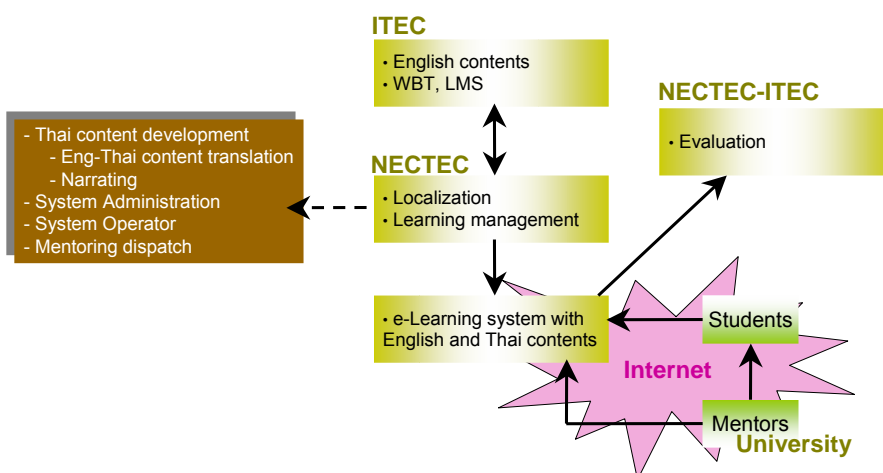- Chieng Mai Univ.
- Maejo Univ.

Project Collaboration
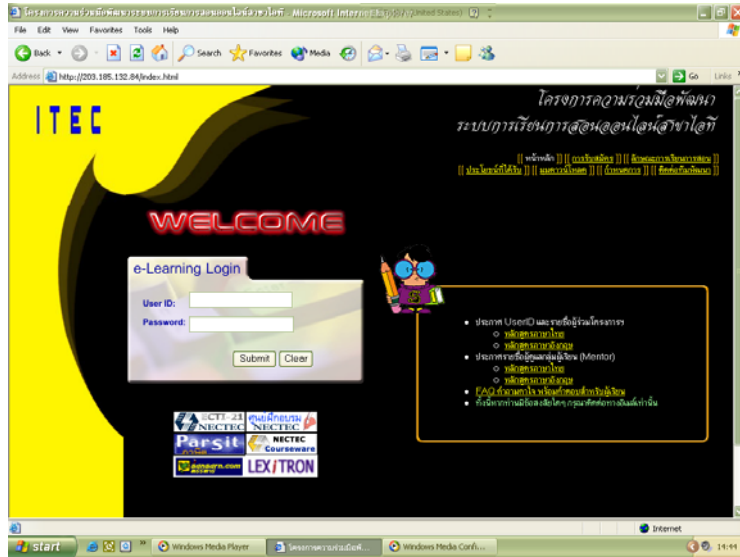
- Basic skill
  - Contents development skill
  - WBT system operation skill
  - Localization skill
- Localization
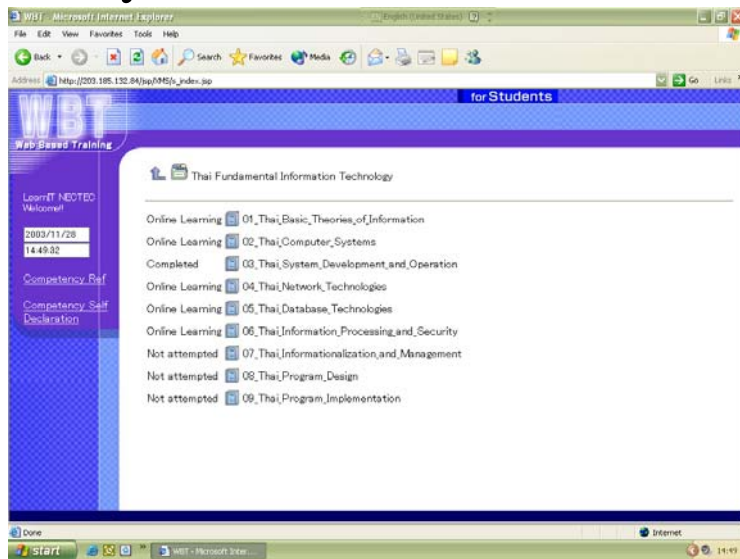 - Tools
  - Contents
  - System integration

Collaboration Flow

ITEC
- English contents
- WBT, LMS

NECTEC-ITEC
- Evaluation

- Thai content development
  - Eng-Thai content translation
  - Narrating
- System Administration
- System Operator
- Mentoring dispatch

NECTEC
- Localization
- Learning management

- e-Learning system with English and Thai contents

Internet

Students

Mentors

University

WBT System Overview

WBT System Overview

System Interface

Note window

Explanation of important phrase regular reference possibility

Learning activity button

·It develops plural effective study methods

Control panel

Customization of window layout
Control of sound
Indication of each window / non- indication

Presentation window

·It develops the animation which parallels to text contents

Mentoring

Implementation
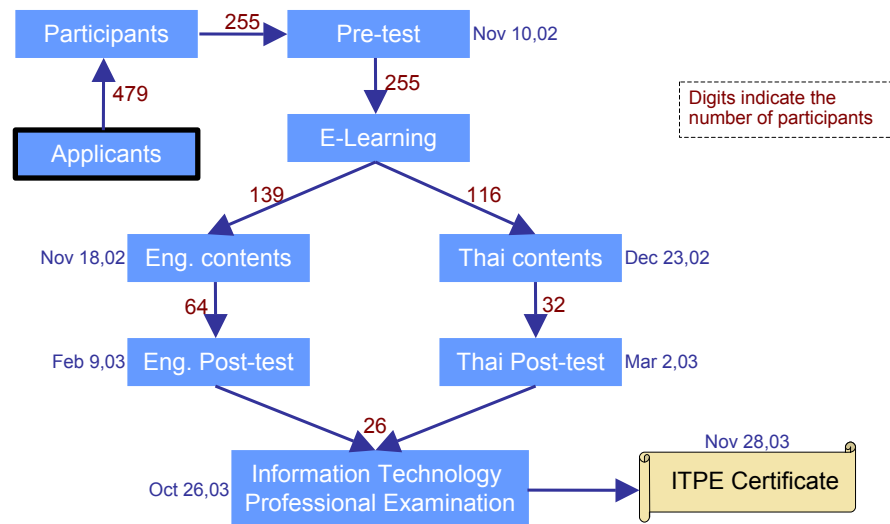
Participants —255→ Pre-test   Nov 10,02

479 → Applicants → Participants

Pre-test —255→ E-Learning

Digits indicate the number of participants

E-Learning —139→ Eng. contents   Nov 18,02

E-Learning —116→ Thai contents   Dec 23,02

Eng. contents —64→ Eng. Post-test   Feb 9,03

Thai contents —32→ Thai Post-test   Mar 2,03

Oct 26,03   Information Technology Professional Examination —26→

Nov 28,03   ITPE Certificate

Learning evaluation

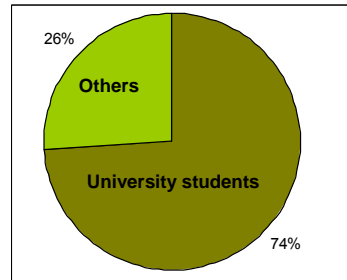## Questions in pre- and post-test

- **Subject:** Fundamental Information Technology Engineer
- **Original Language:** Japanese
- **Translated version of the exam:**
  - Thai (pre, post-test)
  - English (post-test)
- **Amount of question:**   50 items
- **Style:**   Multiple choices (4 choices)
- **Period of examination:**   1 hr.
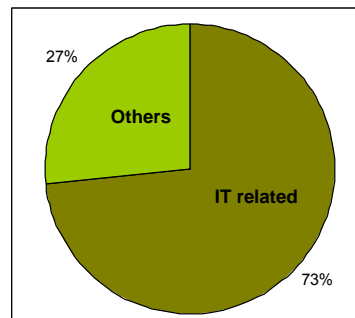
Learning evaluation

Applicants

- Academic career
  - University students 74%
  - Others   26%

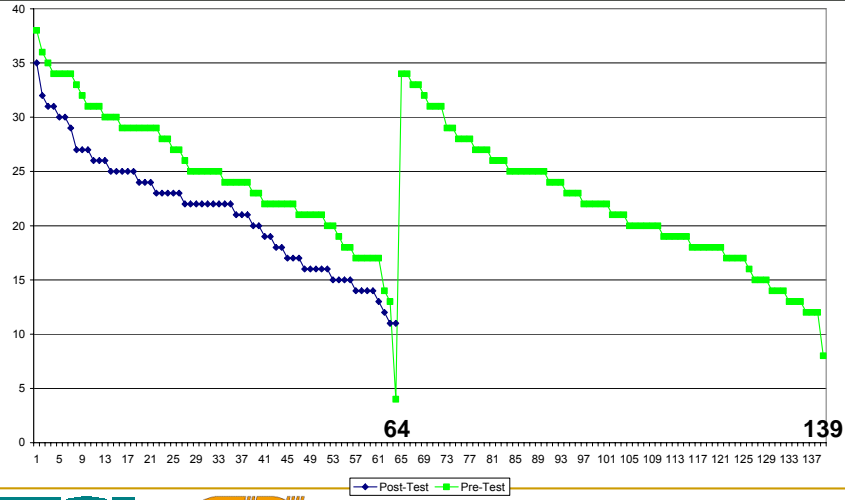# Learning evaluation

Applicants

- Major/field
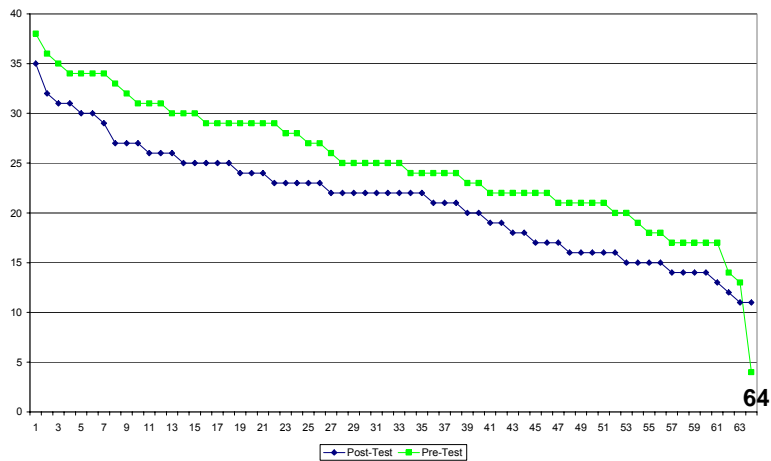 - IT related   73%
  - Others   27%

Learning evaluation

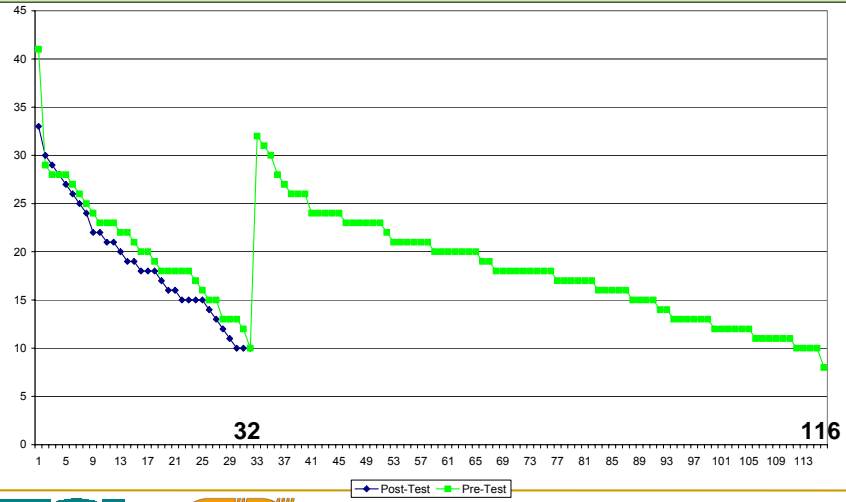## Pre- and post-test score, by English contents

Learning evaluation

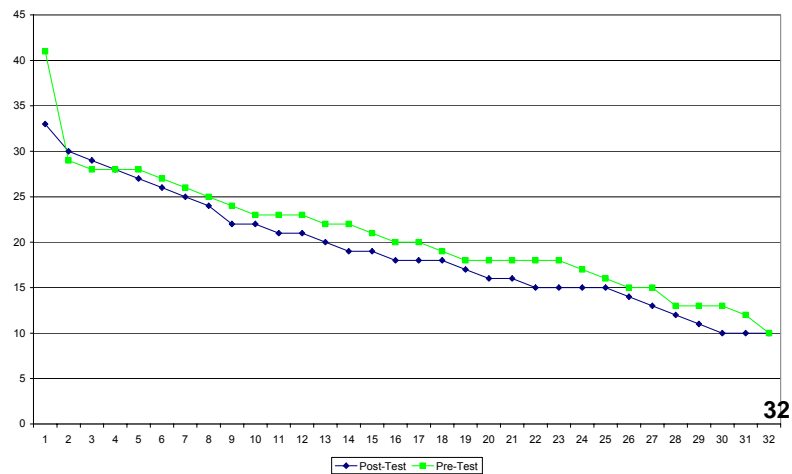## Pre- and post-test score, by English contents

Learning evaluation
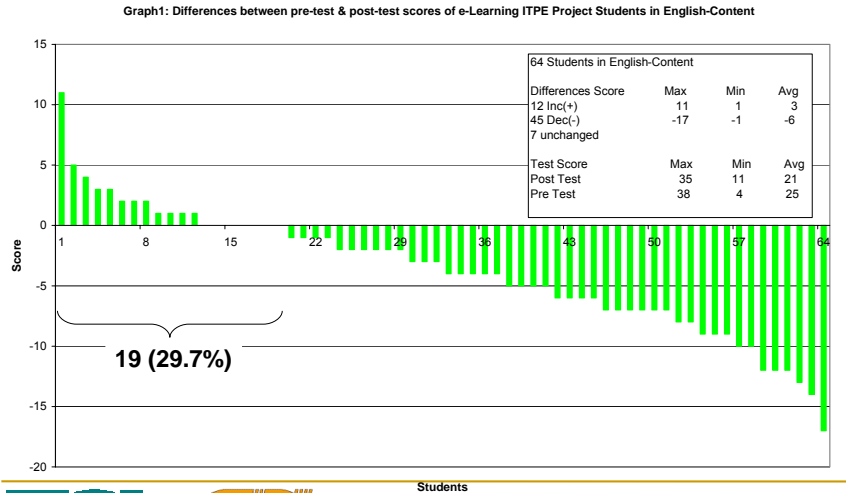
Pre- and post-test score, by Thai contents

Learning evaluation

Pre- and post-test score, by Thai contents

Learning evaluation

Gain and lost, by English contents

Graph1: Differences between pre-test & post-test scores of e-Learning ITPE Project Students in English-Content

64 Students in English-Content			
Differences Score	Max	Min	Avg
12 Inc(+)	11	1	3
45 Dec(-)	-17	-1	-6
7 unchanged			
Test Score	Max	Min	Avg
Post Test	35	11	21
Pre Test	38	4	25

19 (29.7%)

Learning evaluation

Gain and lost, by Thai contents

Graph2: Differences between pre-test & post-test scores of e-Learning ITPE Project Students in Thai-Content

32 Students in Thai-Content			
Different Score	Max	Min	Avg
9 Inc(+)	17	2	7
18 Dec(-)	-13	-1	-6
5 unchanged			
Test Score	Max	Min	Avg
Post Test	33	10	19
Pre Test	41	10	21

14 (43.8%)
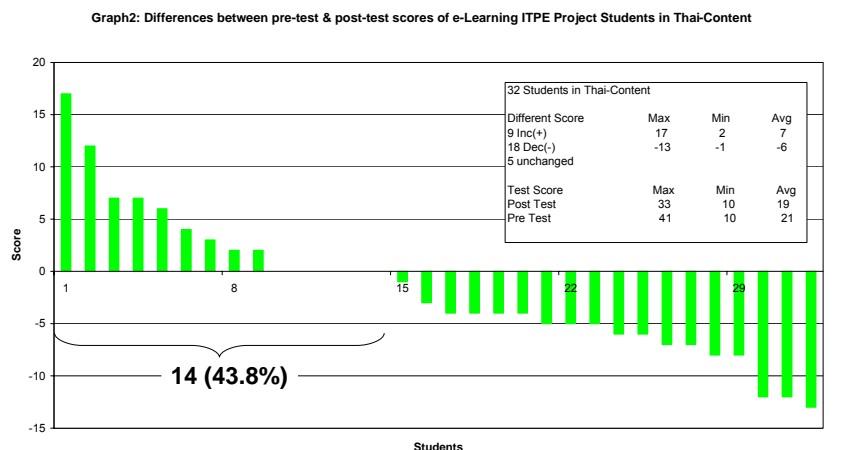
Learning Evaluation

64 participants in English learning				
Person	Max	Min	Ave	
12	11	1	3	Gain
45	-17	-1	-6	Lost
7				Neutral
Pre	38	4	25	
Post	35	11	21	

32 participants in Thai learning				
Gain	Max	Min	Ave	
9	17	2	7	Gain
18	-13	-1	-6	Lost
5				Neutral
Pre	41	10	19	
Post	33	10	21	

96 participants in total				
Person	Max	Min	Ave	
21	17	1	5	Gain
63	-17	-1	-6	Lost
12				Neutral
Pre	41	4	24	
Post	35	10	20	

Concluding Remark

- Theoretically, e-learning participants improve their test score
- Fact:
  - post-test score is slightly lower than pre-test score
  - e-learning participants likely get better score
- Considerable factor:
  - Internet connection: Low speed (modem)
  - Contents: Native language (Thai) and various types of contents are preferred
  - Examination: Post-test (ave.=20) is a bit more difficult than pre-test (ave.=24)

Towards the multi-lingual e-learning environment