

# Laboratory Introduction

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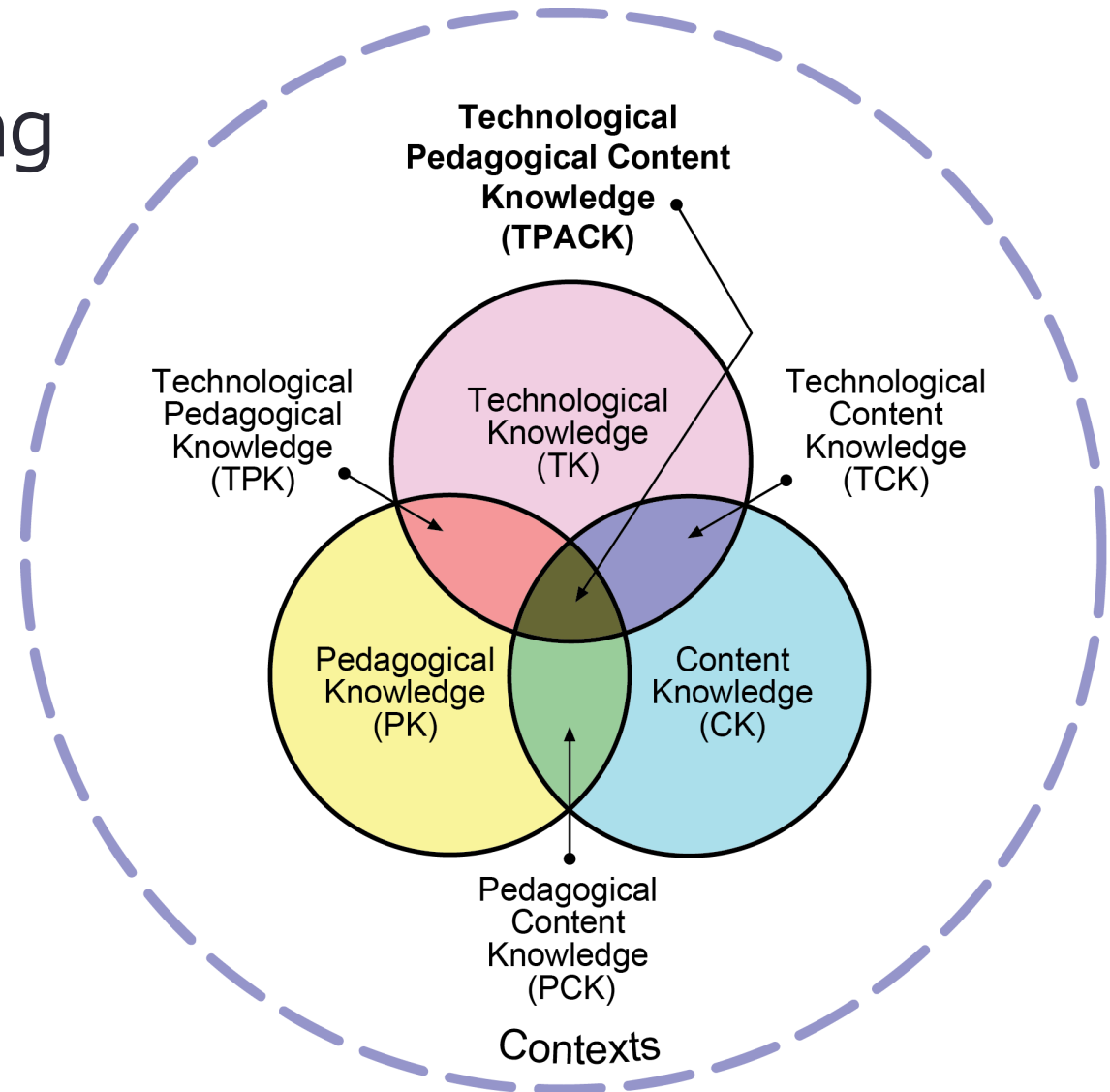
# Introduction

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- Lui Yoshida
  - Graduate School of Engineering
    - International educational program, entrepreneurship education
  - Center for Research and Development of Higher Education
    - Massive Open Online Course (MOOC), Faculty Development in online teaching
- Research field: Educational technology
  - Problem: How can we provide a wider range of better educational opportunities?
    - Development and use of educational technology and pedagogy
    - Faculty development (FD)
- Why TMI?
  - Technology is essential to providing better education
  - Helping to improve the value of technology in the nation and society
  - It is vital that the technology is provided in a sustainable manner (run by private companies).

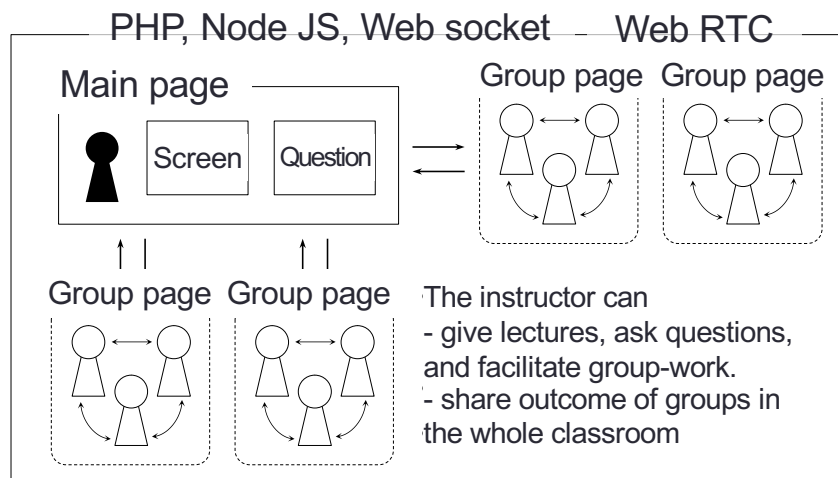
# Promote effective teaching from technology and pedagogy side

- Knowledge critical to effective teaching (TPACK model)
  - Technology
  - Pedagogy
  - Content
- To promote and create technology and pedagogy is important

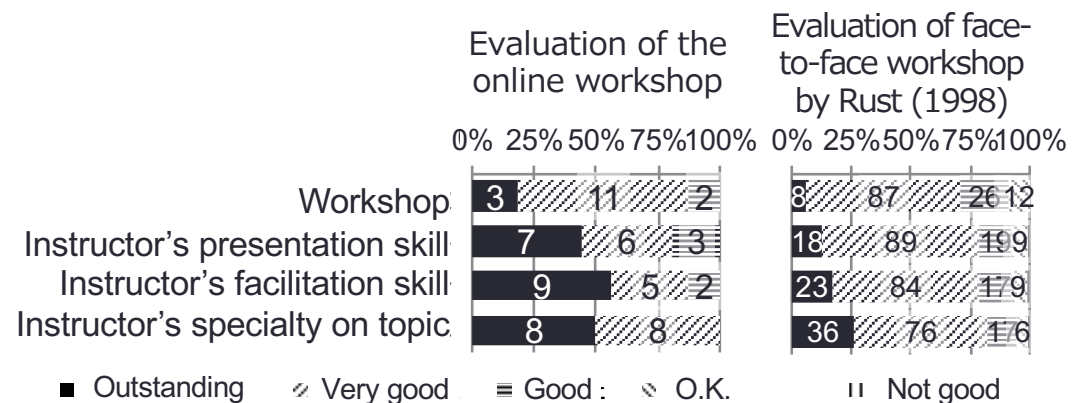


# Research theme 1: Develop new educational technology and FD

- Development, use, and evaluation of web system for online active learning in large class
  - The benefits of active learning, including collaborative learning, are significant  
(Freeman et al. 2014 *PNAS*, Deslauriers et al. 2011 *Science*)
  - Development and utilization of the system, statistical testing, and qualitative analysis
  - Field: FD workshop for teachers (e.g., 1800 participants)



Overview of the web system



Right chart was created based on data in Rust, C. (1998).  
*Journal for Academic Development*, 3(1), 72-80.

Evaluation of a FD workshop

## Research theme 2: Develop new pedagogy and FD

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- Development and Evaluation of Massive Open Online Courses (MOOCs)

(Breslow et. al. 2013 *Research & Practice in Assessment*, Khalil and Ebner 2014 *AACE*)

- The MOOC completion rate is low and motivation management is essential
- Testing the effectiveness of introducing synchronous collaborative learning sessions
- Testing the effectiveness of asynchronous discussion facilitation
- Field: Global MOOC Platform Coursera, edX
  - Use of learning data and questionnaire survey data
  - Courses under development: FD program, entrepreneurship education

The Coursera logo consists of a blue infinity symbol followed by the word "coursera" in a lowercase, blue, sans-serif font.The edX logo features the letters "ed" in a pink color and "x" in a blue color, all in a bold, sans-serif font.