A Connection System in Economics Education
Transcending from Traditional Lectures to More Active Learning Methods
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What is the Connection System?
An instructional strategy that combines several features of a flipped classroom, collaborative learning, corrective teaching, and continuous assessment and feedback. It engages the student with the material through a three-way connection that builds on the human factors:
3. Connection to instructor: individualized student-instructor interaction.

Why Do We Care?
- Economics instruction relies heavily on traditional lectures or instructor-student discussions (Watts & Becker, 2008).
- Some evidence that classroom time may still make a positive difference in student learning (Joyce et al., 2014).
- Students and instructors find it helpful to shift to a more active and student-centered approaches that are more effective.

The Connection System leverages a flipped classroom, a team-based learning, and a corrective teaching for a smoother transition.

How Does the Connection System Work?
1. Before the class
   a) Explain the learning goals for the class
   b) Offer students a first exposure to the material through readings, a lecture video, experiment outside of the classroom
   c) Students take an online quiz with immediate feedback or submit guided reports on experiments

2. Inside the classroom
   a) Introduction to new concepts and understanding feedback
   b) Team-based learning (TBL)
   c) Peer-teaching and peer evaluation

3. After the class and later
   a) Written text and homework
   b) Asynchronous online discussion forums with response to peers
   c) Peer evaluation
   d) Student self-correction of exams and action plans
   e) Individual feedback sessions with students

Potential Challenges
- Students may be uncomfortable at the beginning
- Explain the rationale for course strategies, policies, and assignments on the first day
- Alternate between class formats
- When a student misses a quiz
- No make-up in class quizzes;
- Drop 1 or 2 lowest quiz grades
- Have the TBL part grade
- Avoid free riders in group work
- Peer-evaluation (4th & 5th semester)
- Adjust TBL grade with peer evaluation

Potential Benefits to the Students
- Based on student’s evaluations, reactions are mixed but generally more positive.
- Students get multiple exposure to the material through various styles.
- Connections are human-based making learning more interactive
- The students are more responsible for their own learning, individually and collectively.
- The students know better about how they learn.

In-Class Activities
- Most questions discussed in class are chosen to require a higher order thinking (that带有 students to apply economic principles to real-world problems).

Guidelines for Team Formation
- Match students with different learning styles, potential abilities, gender, etc.
- Use student information questionnaires (collected on first day of class) to learn more about students

Individual feedback
- Where? Mid-semester, e.g., after first midterm exam
- What? Student self-assessment with
  - Connection of wrong answers
  - Identification of their studied concepts and challenges
  - Own actions plan to catch-up
- How? Individualized 10min discussions
  - Review their personal progress
  - Offer encouragement for effort
  - Discuss their actions plan and suggested strategies, including more interactions during office hour.

Helpful Tools
- Time Management for individual meetings
- calendar.com
- Unbounce.me
- Assess students learning
- Google forms online forms
- Moodle or Blackboard survey
- Providing rang and report
- Students “don’t learn those people they don’t stay” (Dr. Person, a teacher for 40 years)
- Discuss interest in strategies
- Connect with them on a personal level.

- High Expectations: Set high expectations and they will strive to meet them,
- Leading to enhanced learning (critical thinking and more complexity)

Team-Based Learning
- If possible, use a 2-week multiple-choice form for immediate feedback
- Otherwise, students choose their top two answers in order.
A Connection System in Economics Education
Transitioning from Traditional Lectures to More Active Learning Methods

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A Connection System in Economics Education  
*Transitioning from Traditional classroom to More Active Learning Methods*

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1. **WHAT IS IT?**

The connection system is an instructional strategy that combines several features of a flipped classroom, collaborative learning, corrective teaching, and continuous assessment. It allows students to connect appropriately and seamlessly to all the resources available to them and receive the appropriate support to deepen their understanding and application of the material. The strategy is designed to facilitate, for both the instructor and the student, a smoother transition from traditional lectures to more active and student-centered approaches of learning.

There are three levels of connection that provide support and help the student learn actively both inside and outside of the classroom:

1) **Self-Connection:** Through student questionnaire at the beginning of the semester, each learner provides her background information and is invited to reflect on her learning styles. Each week, the students are exposed individually to the materials through readings and video-lecture in order to build foundational knowledge. This learning is assessed with weekly online quizzes with immediate feedback. Problem sets and written tests allow the students to apply the concepts. After the midterm exam(s), a self-assessment allows each student to self-correct her exam and explain their best answers, to identify the concepts they are struggling with, and to discuss a plan of actions with the instructors in order to bridge the gap.

2) **Connection with Classmates:** The strategy leverage collaborative learning through peer-instruction (think-pair-share), team-based quiz with periodic peer-evaluation feedback (to avoid free-riding), brainstorming during class lectures, Classroom experiments with role-playing, online discussion forums asynchronously with students replying to two or more peers. Having experienced the same comprehension challenges as her fellows, a student who has finally understood a new concept is better positioned to explain it with success to her peers.

3) **Connection to Instructors:** To make sure that the peer-learning is going in the right direction, the instructor is around to witness student thinking during Team-based or peer-based learning activities. This allow the instructor to provide the appropriate support and corrective learning needed to fully achieve the learning goals. Finally with individualized feedback sessions, the instructor offers additional care and rapport to encourage and support the most struggling learners.

This poster session illustrates how a strategy that embeds successful active techniques, traditional classroom, and the human factor helps students learn principles of economics in an engaging, effective, and hands-on way.

2. **WHY WE CARE**

Despite recent advances in research-based active learning, most economics teachers still rely heavily on traditional lectures or instructor-student discussions (Watts and Becker, 2008). Both students and instructors find it challenging to make the shift from traditional classroom formats to more student-centered approaches. Joyce et al (2014) suggest that classroom time may still make a positive difference in student learning. There is therefore a need to mix both traditional and active learning methods for the benefits of the learners. This teaching system leverages a flipped classroom, a team-based learning, and a corrective-teaching to help both students and instructors make a more smooth transition. In this connection approach, students are offered
multiple opportunities to study the course materials through a multi-layer connection: a guided self-learning, a supervised peer-instruction, and an individualized student-instructor interaction.

3. HOW THE STRATEGY DOES WORKS

The system covers the entire semester-long course and alternate on a weekly basis the following main two classroom formats. For both formats the before-class and after-class activities are quite similar.

a) Before the class:
   - The instructor explains the learning goals for the particular material being covered.
   - Before attending the class, students are offered a first exposure to the material in the form of assigned readings from the textbook or a lecture video (For example MIT OpenCourseWare).
   - As an assessment, students take an online quiz with immediate feedback and multiple attempts (not the answer but hints to the answers), which is part of the grading scheme.

b) Inside the classroom

   The instructor alternate between the following instruction formats:

   **Format 1: A Flipped Classroom with Team-Based Learning (TBL)**
   - Students first take an individual readiness 10mn quiz, also part of the grading system (another incentive for students to prepare for class.)
   - Then they take the same quiz in a Team-based learning setting for 15mn.
   - Their final quiz grade is a weighted average of individual and team-based scores.
   - During the team-based quiz, the instructors supervises and provides guidance as needed.
   - The instructor provides a corrective lecture and a formative assessment as needed.

   **Format 2: Hybrid teaching with think-pair-share**
   - The instructor offers a challenging question to provide a purpose for the class.
   - Then, the instructor delivers a 15-20mn lecture
   - Next, the students are led to discuss the initial question
   - Using peer-instruction (think-pair-share), they solve application problems in the classroom under the instructor’s supervision.
   - Formative assessment is given as needed to adjust the instruction as needed.

c) After the Class and later

   - Written tests and Homework.
   - Asynchronous online discussion forums with response to peers.
   - Peer evaluation in the middle and at the end of the semester to limit free-riding.
   - Student self-correction of exams and actions plan.
   - Individual feedback sessions with students.

4. FURTHER DETAILS

a) In-Class Activities

   - Most questions discussed in class are chosen to require a higher order thinking (that prepare students to apply economic principles to real world problems).

   **Guidelines for Team Formation**
   - Match Students with different learning styles, potential abilities, gender, etc.
   - Use student information questionnaires (collected on first day of class) to learn more about students
b) Individual feedback

- **When?** Mid-semester, e.g. after first midterm exam
- **What?** Student self-assessment with:
  - Correction of wrong answers.
  - Identification of their muddiest concepts and challenges.
  - Own actions plan to catch-up.
- **How?** Individualized 10mn discussions to:
  - Review their overall progress,
  - Offer encouragement for effort,
  - Discuss their actions plan and suggest catch-up strategies.


c) Helpful Tools

- **Time Management** for individual meetings
  - calendly.com
  - youcanbook.me
- **Assess students learning**
  - google docs online forms
  - Moodle or Blackboard survey
- **Providing care and rapport**
  - *Students "don't learn from people they don't like"* (Rita Pierson, a teacher for 40 years).
  - The instructor thrives to show interest and respect to students and connect smartly with them on a personal level.
- **High Expectations**: Set high expectations and they will strive to meet them,
  - leading to enhanced learning (critical thinking and more complexity)
- **Team-Based Learning Quizzes**
  - If possible, use scratch-off multiple-choice form for immediate feedback
  - Otherwise, students choose their best two answers in order.

5. POTENTIAL CHALLENGES

- **Students may be uncomfortable at the beginning**
  - Explain the rationale for course strategies, policies, and assignments on the first day of class.
  - Alternate between class formats
- **When a student misses a quiz**
  - No make-up for in-class quizzes: drop 1 or 2 lowest quiz grades
  - He/she gets the TBL part grade
- **Avoid free riders in group work**
  - Peer-evaluation (mid & end semester).
  - Adjust TBL grade with peer-evaluation.
- **Motivate the students to do the before-class activities**
  - Every activity is part of the grading scheme (online quiz, forum posts, and experiment reports).
  - Adjust TBL grade with peer-evaluation.

6. BENEFITS TO THE STUDENTS

- Based on student’s evaluations, reactions are mixed but generally more positive.
- Students get multiple exposure to the material through various styles.
- Connections are human-based making learning more interactive
- Students are made more responsible for their own learning, individually and collectively.
- Students know better about how they learn.