DQ3: Helping Students Practice and Deepen New Knowledge

Element 15
Strategies for Organizing Students to Practice and Deepen Knowledge

Cooperative Learning
After students have completed practice activities or answered questions independently they can convene in small groups to check their answers with their peers' answers. Engaging in cooperative learning provides students a second opportunity to describe how they approached problems and hear alternative approaches that other students used.

Cooperative Comparisons
Student groups can collaborate to answer comparison questions such as:

- How does our current performance compare to our performance when we started learning the strategy or process?
- How could we classify different techniques for improving our performance with this strategy or process?
- If we were going to coach others to learn this strategy or process, what metaphors or analogies might be helpful to them?

Pair-Check
1. Place students in groups of four and form pairs (two pairs per group) designate who will be Partner A and who will be Partner B.
2. Using a set of exercises, problems, or questions, Partner A works on the first exercise, problem, or question while Partner B coaches them when necessary and praises their work when complete.
3. For the second exercise, problem, or question, the partners reverse roles. Then, the pair checks their answers with the other pair in their group.
4. The goal is for that each member of the group is to reach consensus about each solution. The group members discuss and coach each other until a common solution is reached, if solutions do not match.
5. The process is repeated, with consensus being achieved after every two exercises, problems, or questions.

Think-Pair-Share and Think-Pair-Square
The teacher groups the students in pairs, then presents a problem. For a predetermined time each student individually thinks about the problem. Then, each student shares his or her thoughts, ideas, and possible solutions with his or her partner. Partners discuss and then come to a consensus about their solution. The teacher then asks pairs to share what they decided with the class. Variation - Think-Pair-Square - pairs confer with another pair (making a group of four) and come to a consensus in that group as well before sharing with the whole class.
**Student Tournaments**
Organize students into teams to compete in various academic games. The teacher may wish to keep track of each team’s points over the course of a unit and provide a tangible reward or recognition to the top one or two teams. Team members should be changed after each unit to ensure that students have the opportunity to work with various students.

**Error Analysis and Peer Feedback**
Group students in pairs, one partner watch the other complete a process or perform a task. The students use the evaluation criteria provided by the teacher, one partner analyzes the other’s performance and offers feedback about successes, errors, or missteps.

**Performances and Peer Critiques**
Teacher asks students to complete culminating performances when students are learning procedural knowledge. These performances might conclude with peer review activities, where other students offer praise, ask questions, and give suggestions for improvement.

**Inside-Outside Circle**
Students form two concentric circles with an equal number of students in each circle. Students forming the inner circle stand facing outward, and students forming the outward circle stand facing inward (so that each person in the inner circle is facing a person in the outer circle). The teacher poses a question or presents a problem, and students discuss their thoughts, answers, and solutions with the person facing them. The teacher gives a signal, and then each person in the inner circle takes one step to the left, so that everyone is now facing a new partner. Partners again compare answers and solutions, after which the teacher has individuals to share answers or solutions with the group. To increase the rigor of this activity the teacher may also ask students to share what they discussed with their partners and how it changed (or didn’t change) their thinking.