

**Indicator: All teachers provide sound instruction in a variety of modes: teacher-directed whole-class; teacher-directed small-group; student-directed small group; independent work; computer-based. (5087)**

**Evidence Review:**

At least three powerful methods of instruction can readily accommodate re-teaching (Cawelti, 2004; Marzano, Pickering, & Pollock, 2001; Walberg, 2006). Direct instruction can be viewed as traditional or conventional whole-group teaching done well. Since teaching changed very little in the 20th century and may not change substantially in the near future, it is worthwhile knowing how the usual practice can excel. Since it has evolved from ordinary practice, direct teaching is relatively easy to carry out, does not disrupt conventional expectations, and can incorporate teaching various subcomponents such as asking questions. Scholars do not completely agree on the definition of direct instruction. They may refer to it as explicit, process-product, direct, active, or effective teaching. The earliest reviews emphasized observed traits of teachers including clarity, task orientation, enthusiasm, and flexibility, as well as their tendencies to structure their presentations and occasionally use student ideas. The early summaries of research emphasized systematic sequencing of lessons, including the use of review, the presentation of new content and skills, guided student practice, the use of feedback and correctives, and independent student practice.

Based on later observational and control-group research, reviewers identified six phased functions of explicit teaching: (1) daily homework check, review, and, if necessary, re-teaching; (2) rapid presentation of new content and skills in small steps; (3) guided student practice with close monitoring by teachers; (4) corrective feedback and instructional reinforcement; (5) independent practice in seatwork and homework with high (more than 90%) success rate; and (6) weekly and monthly review (Brophy, 1999; Subotnik & Walberg, 2006).

Following the same evolution of research, reviewers identified the essential elements of “Mastery Learning.” Originally conceived by Benjamin Bloom, Mastery Learning combines suitable amounts of time for individual students and behavioral elements of teaching (Walberg, 2006):

- “Cues” show students what is to be learned and explain how to learn it. Cues are more effective with increased clarity, salience, and meaningfulness of explanations and directions provided by teachers, instructional materials, or both. As the learners gain confidence, in ideal circumstances, the salience and numbers of cues can be reduced.
- “Engagement” is the extent to which learners actively and persistently participate until appropriate responses are firmly entrenched in their repertoires. Such participation can be indexed by the extent to which the teacher engages students in overt activity – indicated by absence of irrelevant behavior, concentration on tasks, enthusiastic contributions to group discussion, and lengthy study.
- “Corrective feedback” remedies errors in oral or written responses. In ideal circumstances, students waste little time on incorrect responses, and teachers rapidly detect and remedy difficulties by re-teaching or using alternate methods. When necessary, teachers provide additional time for practice.
- “Reinforcement” is illustrated in the efforts elicited by athletics, games, and other cooperative and competitive activities. Immediate and direct reinforcement make some

activities intrinsically rewarding. As emphasized by some theorists, classroom reinforcement may gain efficacy mainly by a rewarding sense of accomplishment or providing knowledge of results.

Formative tests are employed to allocate time and guide reinforcement and corrective feedback. Mastery usually takes additional time, a reported median of 16 percent but up to 97 percent more time than conventional teaching. On the other hand, its effects are large, and, in restructuring schools, some students are likely to require the extra time to attain AYP and eventual proficiency.

Developed by the late Ann Brown and others, "Reciprocal Teaching" is a third approach that can incorporate re-teaching when it appears necessary (Cawelti, 2004; Subotnik & Walberg, 2006). In the 1980s, cognitive psychologists sought teaching methods to encourage "meta-cognition" or "learning to learn." In this approach, learners monitor and manage their evolving knowledge, skills, and understanding with self-management viewed as more important than simple acquisition. Teachers transferred some of the responsibility for explicit teaching functions of planning, allocating time, and review. It turned out that that such self-teaching and self-monitoring of progress fostered learner independence, particularly of more advanced content.

How does reciprocal teaching work? It is not dissimilar to the old saying: "To learn something well, teach it," which encourages learners to coherently organize material in preparation for teaching to make it clear and memorable to themselves and others. One practical way to accomplish this is to ask students to each master separate but inter-related parts of a challenging reading selection and organize it for presentation. They take turns, often in groups of two, in imparting the pertinent features of their part of the text. In reciprocal teaching, students learn planning, structuring, and self-management by assuming the planning and executive control ordinarily exercised by teachers.

Similarly, "comprehension teaching" encourages students to measure their progress toward explicit goals. It can be described as a three-stage process of (1) modeling, where the teacher demonstrates the desired behavior; (2) guided practice, where the students perform with help from the teachers; and (3) application, where the student works independently of the teacher. Learners are encouraged to increase their self-awareness of their own progress and reallocate time for their weak points when necessary. Comprehension teaching encourages students to measure their progress toward explicit goals.

**Source:** Herb Walberg, *Handbook on Restructuring and Substantial School Improvement*.

### **Evidence Review:**

The most widely replicated findings concerning the characteristics of teachers who elicit strong achievement score gains are:

1. **Teacher Expectation/Role Definition/Sense of Efficacy:** Teachers accept responsibility for teaching their students. They believe that students are capable of learning. They re-teach if necessary, and alter materials as needed.
2. **Student Opportunity to Learn:** Teachers allocate most of their available time to instruction, not non-academic activities, and learning activities are carefully aligned to standards.
3. **Classroom Management and Organization:** Teachers organize their learning environments and use group management approaches effectively to maximize time students spend engaged in lessons.
4. **Curriculum Pacing:** Teachers move through the curriculum rapidly but in small steps that minimize student frustration and allow continuous progress.

5. **Active Teaching (sometimes called Direct Instruction):** Teachers actively instruct, demonstrating skills, explaining concepts, conducting participatory activities, reviewing when necessary. They teach their students rather than expecting them to learn mostly from curriculum materials. They do not just stress facts or skills, they also emphasize concepts and understanding.
6. **Teaching to Mastery:** Following active instruction, teachers provide opportunities for students to practice and apply learning. They monitor each student's progress and provide feedback and remedial instruction as needed, making sure students achieve mastery.
7. **A Supportive Learning Environment:** In addition to their strong academic focus, these teachers maintain pleasant, friendly classrooms and are perceived as enthusiastic, supportive instructors.

(Brophy & Good, 1986; Good, 1996; Reynolds, 1992; Waxman & Walberg, 1991)

An analysis of quality of instruction (Walberg, 1984; Wang, Haertel, & Walberg, 1993) finds evidence of the strength of particular instructional elements, mastery learning techniques, direct instruction, and graded homework. Techniques employed during teacher-directed instruction have demonstrated impressive power (effect sizes) in studies of student learning. Cues, for example, are especially effective in activating prior knowledge and alerting students to important information (Walberg & Lai, 1999). Connecting to prior knowledge is not only helpful in organizing new learning, but increases students' interest in the topic (Alexander, Kulikowich, & Schulze, 1994). Advance organizers, first popularized by psychologist David Ausubel (1968), provide scaffolding for the incorporation of new material to be introduced within the next 20 minutes or so. Advance organizers take such forms as visual graphics, lists, and statements abstracting the material. Simply describing the new content (expository advance organizer) is the most effective type of advance organizer, but other forms (narrative – brief presentation in story form, skimming – quick preview of text, and illustrated – use of visuals) are also effective (Stone, 1983). Internal summaries and the rule-example-rule approach have demonstrated their power in enhancing learning (Rosenshine, 1968). The agile teacher who is able to articulate clear goals and expectations for the lesson and make wise decisions in the use of various instructional techniques is key to teacher-directed instruction (Good & Brophy, 2000).

Teacher-directed, small-group instruction is an effective follow-up to the whole-class presentation, enabling the teacher to focus instructional attention on the particular requirements of homogeneous groups of students. The groupings should be fluid, rearranged frequently in response to particular learning needs. Students should not be clustered in other ways – such as seating arrangements – that appear to solidify group membership and “label” members. Because groups are formed to address particular learning needs, they will vary from time to time in number of members and in the time devoted to them (Good & Brophy, 2000). Small groups may also be employed for student-directed learning, with instructions provided by the teacher, and are especially effective for cooperative learning and peer-to-peer learning.

More and more, technology is used to individualize instruction, provide a well-organized presentation of material, offer feedback, and allow students to progress at their own rate. Computer-based instruction is successful when the program is carefully aligned with the same standards and objectives that the teacher is addressing within the designated unit of instruction. This requires the teacher to know the content of the computer program and to use it in concert with other modes of instruction. It also requires that the teacher check for mastery of objectives independent of the program's validation of mastery. When a computer program is successful, students are engaged, on task, and comfortable with the program and its navigation. The teacher

travels about the room to assist students and monitor their work. When a student is in need of assistance from the teacher, the teacher provides curriculum-related activities to avoid “down time.” In terms of classroom management, the students are taught to make orderly transitions to and from their computer stations.

With technology-assisted instruction, the teacher uses computers and other technology tools as a seamless part of the learning activity. Students use word processing programs to write and edit their written work. They develop projects with presentation software. They use the internet as a source of information. All this requires clear direction to gather, organize, and present information. To make technology-assisted instruction fruitful, teachers must be trained in the use of the software and must be supported in integrating the technology into the routine of instruction. Technology can also be a great asset to teachers in their recordkeeping.

**Source:** Sam Redding, *Handbook on Restructuring and Substantial School Improvement*.

### References and other resources:

- Alexander, P. A., Kulikowich, J. M., & Schulze, S. K. (1994). How subject matter knowledge affects recall and interest. *American Educational Research Journal*, 31(2), 313-337.
- Ausubel, D. (1968). *Educational psychology: A cognitive view*. New York: Holt, Rinehart & Winston.
- Brophy, J. (1999). *Teaching*. Geneva, Switzerland: United Nations Educational, Scientific, and Cultural Organization. Retrieved Fall 2006 from <http://www.ibe.unesco.org/publications/practices.htm>
- Brophy, J. E., & Good, T. G. (1986). Teacher behavior and student achievement. In M. Wittrock (Ed.), *Handbook of research in teaching* (3rd ed., pp. 328–375). New York: Macmillan.
- Cawelti, G. (Ed.). (2004). *Handbook of research on improving student achievement*. Arlington, VA: Educational Research Service.
- Emmer, E. T., Evertson, C. M., Sanford, J. P., Clements, B. S., & Worsham, M. E. (1984). *Classroom management for secondary teachers*. Englewood Cliffs, NJ: Prentice-Hall.
- Good, T. (1996). Teacher effectiveness and teacher evaluation. In J. Sikula, T. Buttery, & E. Guyton (Eds.), *Handbook of research on teacher education* (2nd ed., pp. 617-665). New York: MacMillan.
- Good, T. L., & Brophy, J. E. (2000). *Looking in classrooms* (8th ed.). New York: Addison Wesley Longman.
- Marzano, R. J., Pickering, D. J., & Pollock, J. E. (2001). *Classroom instruction that works: Research-based strategies for increasing student achievement*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Evertson, C. M., Emmer, E. T., Clements, B. S., Sanford, J. P., & Worsham, M. E. (1984). *Classroom management for elementary teachers*. Englewood Cliffs, NJ: Prentice-Hall.
- Reynolds, A. (1992). What is competent beginning teaching? A review of the literature. *Review of Educational Research*, 62, 1-35.
- Rosenshine, B. (1968). To explain: A review of research. *Educational Leadership*, 26, 275-280.
- Subotnik, R. F., & Walberg, H. J. (2006). *The scientific basis of educational productivity*. Greenwich, CT: Information Age Publishing.
- Walberg, H. J., & Lai, J.-S. (1999). Meta-analytic effects for policy. In G. J. Cizek (Ed.), *Handbook of educational policy* (pp. 419-453). San Diego, CA: Academic Press.
- Wang, M. C., Haertel, G. D., & Walberg, H. J. (1993). Toward a knowledge base for school learning. *Review of Educational Research*, 63, 249-294.
- Waxman, H. C., & Walberg, H. J. (Eds.). (1991). *Effective teaching: Current research*. Berkeley, CA: McCutchan.

©2010 Academic Development Institute

### Tools:

- See tools and forms in *The Mega System: Deciding. Learning. Connecting*.  
[www.centerii.org/survey](http://www.centerii.org/survey)

### Resources:

- See research syntheses and indicators of effective practice in the *Handbook on Restructuring and Substantial School Improvement* and *The Mega System: Deciding. Learning. Connecting*. [www.centerii.org/survey](http://www.centerii.org/survey)

- ▶ **Choosing and Implementing Technology Wisely**, NHSC, *SIG Handbook*, pp. 127-130, [www.centerii.org/survey](http://www.centerii.org/survey)
- ▶ **Accelerating Acquisition of Basic Reading Skills: Elementary and Middle School**, COI, *SIG Handbook*, pp.133-136, [www.centerii.org/survey](http://www.centerii.org/survey)
- ▶ **Accelerating Acquisition of Basic Mathematics Skills: Elementary and Middle School**, COI, *SIG Handbook*, pp. 137-138, [www.centerii.org/survey](http://www.centerii.org/survey)
- ▶ **Accelerating Instruction in Reading: Grades 9-12**, NHSC, *SIG Handbook*, pp.139-142, [www.centerii.org/survey](http://www.centerii.org/survey)
- ▶ **Accelerating Instruction in Mathematics: Grades 9-12**, NHSC, *SIG Handbook*, pp.143-144, [www.centerii.org/survey](http://www.centerii.org/survey)
- ▶ **Providing Advanced Coursework in High Schools**, NHSC, *SIG Handbook*, pp.145-148, [www.centerii.org/survey](http://www.centerii.org/survey)
- ▶ **Implementing Competency-Based Instruction in High Schools**, NHSC, *SIG Handbook*, pp.149-148, [www.centerii.org/survey](http://www.centerii.org/survey)
- ▶ **Using Response to Intervention**, COI, *SIG Handbook*, pp. 123-126, [www.centerii.org/survey](http://www.centerii.org/survey)