

Training Principals and Teachers for Mastery Learning

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In Denver, teachers are trained and supervised by their principals as they plan and teach their own mastery learning units.

The emphasis of the Denver Mastery Learning Program is on inservice. Project staff members train principals using methods and materials that the principals will use later with their faculties. The training includes opportunities for them to discuss with project staff members any concerns or questions they may have and to brainstorm possible solutions.

Topics for the inservice sessions are grouped under three headings: Planning for Mastery, Teaching for Mastery, and Managing a Mastery Learning Classroom. The contributions of Benjamin Bloom, Lorin Anderson, James Block, and Madeline Hunter are reflected in the training. Two of the units are sequential, with each session applying the ideas presented in the previous sessions. Thus teachers are taken through a carefully planned systematic approach in how to plan a mastery unit and how to make it successful when they teach it.

Each inservice session is conducted before or after school during a one-hour staff development meeting. All sessions follow a similar format: the principal first discusses the main ideas with teachers and then has them participate in an application activity. These short, active sessions allow teachers to practice the ideas immediately so they can easily make the transfer to their own classrooms.

Principals are also trained in supervision skills so they can help teachers implement mastery learning in their classrooms. After an inservice session, teachers can expect an observation by their principal. The principal keeps anecdotal records during the brief observation, later analyzes the anecdotal record in relation to concepts taught in the inservice session, and then confers with the teacher to point out specific strengths and weaknesses of the observed lesson.

The Model

The instructional model that teachers are trained to use is included as Figure 1. Although teachers are expected to adhere closely to the instructional model (they must state their instructional objective and have evaluation tools developed that will measure student mastery of that objective), a great deal of teacher creativity and individuality is displayed in the planning of daily lessons, correctives, and extension activities.

All mastery learning materials are assembled and/or developed by classroom teachers. They can choose from a multitude of sources the most appropriate materials to teach the objective, or if appropriate materials are not available, they develop them themselves.

Results

The Denver Mastery Learning Program is funded by Title IV-C of the Elementary and Secondary Education Act. After a three-year pilot study in five elementary schools, statistical evaluation results indicate overwhelmingly that the project is effecting change for administrators, teachers, and students. Program students showed a significant increase in achievement during the third year of the program ($p < .001$ in a comparison of fall to spring achievement on the California Test of Basic Skills).

When scores of students in the program were compared with those of students not in the program, we found no significant differences in achievement or attitude at the primary level. At the intermediate level, however, program students showed significantly

Figure 1. Denver Public Schools' Mastery Learning Program Instructional Model

The Mastery Learning strategy being implemented in the Denver Public Schools is an adaptation of the mastery model described by James Block and Lorin Anderson in their book, *Mastery Learning in Classroom Instruction*. Planning and teaching to mastery can best be described through a flow chart.

- I. Planning for mastery
 - A. State overall objective.
 - B. Task analyze overall objective.
 1. Identify prerequisite skills.
 - a. Develop pre-test to measure mastery of prerequisite skills.
 2. Identify component skills.
 - a. Develop summative test to measure mastery of component skills and set mastery standard for that test.
 - b. Write mini-learning unit objectives.
 - C. Planning instruction.
 1. Develop lesson plans to teach mini-learning unit.
 2. Develop diagnostic/progress tests to measure mastery of mini-learning unit objectives.
 3. Develop correctives for each mini-learning unit.
 4. Develop extension activities for each mini-learning unit.
- II. Teaching to mastery
 - A. Orient students to your mastery strategy.
 - B. Teach each mini-learning unit to mastery.
 1. Allow students adequate time to practice the skill.
 2. Administer diagnostic/progress tests to determine how students' learning is forming.
 - a. Students who do not master diagnostic/progress tests work with correctives until learning has been mastered.
 - b. Students mastering diagnostic/progress tests "extend" or "broaden" their thinking of that objective by working with extension activities.
 - C. After each mini-learning unit has been mastered, administer the summative exam.
 1. Grade the exam based on your predetermined mastery standard.
 2. Report back to students what their grade really represents.
 - D. Check on overall effectiveness of program.
 1. Evaluate success of program in terms of students' mastering the final exam.
 2. Compare results of student success in mastery program with student success when you were teaching by traditional methods.

greater improvement in math ($p \neq < .001$); and language arts ($p = .003$), the two subjects emphasized in the project. Program students also expressed more positive attitudes, especially on issues directly related to the mastery learning program (probability level ranged from .04 to .001).

Teachers showed a significant increase in use of skills and techniques during the second year of the project ($p = .001$) and maintained these skills over the third year of the project. Off-task behavior exhibited by students dropped significantly during the pilot study ($p = .05$). In addition, principals and teachers reported increased communication in their buildings with an improved view of the principal as an instructional leader.

Mastery learning is a workable technique by which student attitude and achievement can be improved, but it requires a great deal of time and commitment from teachers and principals. "It's a lot of hard work," they say, "but it's worth it."



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