Teaching Methods

Herbert J. Walberg

In this piece, Dr. Herb Walberg documents effective teaching methods and examines which, if any, are implemented in classrooms in the United States. Walberg, an internationally respected education psychologist, is renowned for his work comparing elementary and primary education systems in different countries. In most instances, Walberg finds that American schools do not emphasize effective teaching methods and have failed to implement successful learning strategies used elsewhere.

Specifically, Walberg examines several factors, including the average amount of homework American teachers typically assign and how much time children spend in school in the United States. He finds that when compared with students in countries like China and Korea, American students spend about half as much time studying each year as their counterparts. Empirical evidence suggests that study time is positively related to student performance, and according to Walberg, this time factor is a major reason for American students' slipping further and further behind students in other countries.

Overall, Walberg lists several components, like clearly identified academic standards, direct teaching, and encouraging increased parental involvement, that when used together, improve learning. These strategies are hardly revolutionary; they are well-known and effective educational practices that have been used in other countries and in many high-performing schools in the United States. The real mystery is why they have not been implemented on a larger scale in a greater number of public schools. Until educators accept and implement these proven methods, the prospects for improved student outcomes remain bleak.

INTRODUCTION AND OVERVIEW

As an educational psychologist, I have had a thirty-five-year interest in identifying the methods and conditions within and outside classrooms that help improve student performance. Educators should choose those methods that positively, consistently, and powerfully affect how much children learn. To do this, they could turn to the hundreds of studies and thousands of comparisons concerning the relative effects of various educational conditions and methods. But this research literature is voluminous and scattered. So I have tried to synthesize the research in various publications, the most recent of which provide the sources for this chapter.[1]

The direct, immediate, powerful, consistent, and psychological causes of learning may be divided into the nine factors shown in Table 1 on page 57. My focus in this chapter is on instructional methods, but the table makes clear that student aptitude and psychological environments are also pervasive influences on learning. Children may learn little, for example, if they are unmotivated to learn or if in the 87 percent of their waking hours spent outside school in the first eighteen years of life they are not stimulated to develop their vocabulary and other academic ingredients of success. Still, teaching methods

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[1]These include Herbert J. Walberg and Geneva D. Haertel, eds., *Psychology and Educational Practice* (Berkeley, Calif.: McCutchan Publishing, 1997); Hersholt C. Waxman and Herbert J. Walberg, eds., *New Directions for Teaching Research and Practice* (Berkeley, Calif.: McCutchan Publishing, 1999); Herbert J. Walberg, "Uncompetitive American Schools," in Diane Ravitch, ed., *Brookings Papers on Education Policy* (Washington, D.C.: Brookings Institution, 1999); Arthur J. Reynolds and Herbert J. Walberg, eds., *Evaluation Research for Educational Productivity* 7 (Greenwich, Conn.: JAI Press, 1998); Herbert J. Walberg and Jin-Shei Lai, "Meta-Analytic Effects for Policy," in Gregory J. Cizek, ed., *Handbook of Educational Policy* (San Diego, Calif.: Academic Press, 1999); and Herbert J. Walberg, "Generic Methods," in Gordon Cawelti, ed., *Handbook on Improving Student Achievement* (Alexandria, Va.: Educational Research Service, 1998).

TABLE 1   Nine Educational Productivity Factors

A. Student aptitude
  1. Ability or prior achievement
  2. Development as indexed by chronological age or stage of maturation
  3. Motivation or self-concept as indicated by personality tests or the student's willingness to persevere intensively on learning tasks
B. Teaching methods
  1. Amount of time students engage in learning
  2. Quality of the instructional learning experience, including
     a. Organization of subject matter
     b. Pedagogy or psychological principles of teaching
C. Psychological environments
  1. "Curriculum of the home"
  2. Morale or student perception of classroom social group
  3. Peer group outside school
  4. Minimal leisure-time television viewing

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should be of great interest, since, of the nine factors, they are most alterable by educators and policy makers.

This main body of this chapter is divided into four sections. The next three sections divide teaching methods into three aspects corresponding to Table 1, namely, the amount the child is taught, the organization of the subject matter, and the pedagogical techniques. The fourth section treats the context or conditions of teaching.

AMOUNT OF TEACHING

My compilation of 376 estimates of the effect of the amount of teaching and assigned and voluntary study time on children's learning revealed that 88 percent were positive.[2] This may be

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[2]See Walberg, "Meta-Analytic Effects for Policy."

the most consistent finding of all psychological research on academic learning, but the obvious conclusion may not even require such documentation.

Yet the policy implication has hardly been implemented in the United States, which still has one of the shortest school years among rich countries and whose children do less homework than their counterparts in advanced Asian and European countries. Two of my students have examined study habits of Chinese and Korean students. Since the Asian students have more days in their school year and more homework and often attend after-school tutoring schools, it appears that they have about twice the total annual study time of American students. The time factor is a major reason for U.S. children falling further and further behind during the school year.

Studies of how American children spend their time show that they would lose little in order to study more, since television and other non–educationally productive, passive, sedentary, and even harmful activities consume much of their outside-school time. There are, however, some encouraging examples: Chicago public schools give underperforming students a choice of repeating a grade or trying to catch up in summer school. Many Asian families who have recently immigrated to the United States send their children to private tutoring schools. I sit on the board of the privately supported Academic Development Institute in Chicago, which provides programs for parents to stimulate their children's academic progress at home and at school through leisure reading, learning about their children's academic strengths and weaknesses, taking their children to museums, and the like.

Nevertheless, the root causes of American students' poor study habits are the short school year of 180 days originating in our agrarian society of long ago, our lack of rigorous academic standards, and the failure of school boards, educators, and parents to insist on a larger amount of serious academic work, including homework.

CURRICULUM CONTENT ORGANIZATION

Curriculum is a vast field that can be treated at encyclopedic length. My focus is not on what to teach but on how the subject may be best organized. Specifically, my focus is on our distinctive American problem—the lack of uniform content standards. Along with Australia, Canada, and Germany, the United States is different from most other countries in having little national or federal control of education. Countries such as France and Japan that have strong education ministries can set forth curriculum content and standards for schools. If Japanese students move from Sendai to Kyoto or Tokyo, their new teachers will know what they studied in previous grades. The United States is only now fitfully and variously enacting state standards. Many teachers do not know what their students previously learned even if they remain in the same school, district, or state. For this reason, American teachers spend much of the first part of each academic year in review of prerequisite knowledge and skills, which bores some children and excessively challenges others.

Even fully enacted state standards might not solve the problem. About one-fifth of U.S. families move each year, some from state to state. Sharply defined and different standards from state to state could make school transitions even harder for such children. One solution is to test them and possibly hold them back a semester or a grade. Efforts by subject matter experts, educators, and members of the public to specify grade-level content standards in mathematics, history, and English are hardly encouraging; they have been unable to reach a stable national consensus on what should be taught much less seeing that it is widely and uniformly enacted in schools.

National for-profit firms and not-for-profit groups such as Edison Schools, Core Knowledge, and Sabis provide some hope, since they have developed curricula that are uniformly employed in their respective schools. In more than a merely futuristic sense, the Internet and other forms of distance

education provide a promising means of delivering "anytime, anyplace" uniform content that is well articulated from grade to grade or from learning experience to learning experience.

Related to grade articulation is "aligned time on task," which means that teaching and study time should reflect curricular goals. Students who are actively engaged in activities focused on specific instructional goals make more progress toward these goals. Alignment of assessment with curricular goals can also provide time efficiency. "Systemic reform" means that three components of the curriculum—goals; textbooks, other teaching materials, and learning activities; and tests and other outcome assessments—are well matched in content and emphasis. Consequently, students at a given grade level should have greater degrees of shared knowledge and skills as prerequisites for further learning; teachers can avoid excessive review; and progress can be better assessed.

PEDAGOGICAL METHODS

Evidence from many studies of 275 pedagogical methods and educational conditions are summarized elsewhere.[3] This section concerns several that are relatively simple to employ and that have excellent records of promoting learning. The research on these methods and conditions has accumulated over half a century. Most of the studies employed control-groups and contrasted the amount learned, or gains, from pretests to posttests given before and after the intervention. Other studies analyzed national and international achievement surveys of as many as several hundred thousand students.

Parent Involvement

Learning is enhanced when schools encourage parents to stimulate their children's intellectual development. Dozens of studies in the United States, Australia, Canada, England, and elsewhere show that the home environment powerfully

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[3]Ibid.

influences what children and youth learn within and outside school. This environment is considerably more powerful than the parents' income and education in influencing what children learn in the first six years of life and during the twelve years of primary and secondary education.

As previously mentioned, one major reason that parental influence is potentially so strong is that from birth through age eighteen children spend approximately 87 percent of their waking hours outside school under the nominal or real influence of their parents. Cooperative efforts by parents and educators to modify alterable conditions in the home have strong, beneficial effects on learning. In twenty-nine controlled studies, 91 percent of the comparisons favored children in such programs over nonparticipant control groups.

Sometimes called "the curriculum of the home," the home environment refers to informed parent-child conversations about school and everyday events; encouragement and discussion of leisure reading; monitoring and critical review of television viewing and peer activities; deferral of immediate gratification to accomplish long-term goals; expressions of affection and interest in the child's academic and other progress as a person; and perhaps, among such unremitting efforts, laughter and caprice. Reading to children and discussing everyday events prepare them for academic activities before attending school.

Cooperation between educators and parents can support these approaches. Educators can suggest specific activities likely to stimulate children's learning at home and in school. They can also develop and organize large-scale teacher-parent programs to systematically promote academically stimulating conditions and activities outside school.

Graded Homework

Students learn more when they complete homework that is graded, commented on, and discussed by their teachers. A synthesis of more than a dozen studies of the effects of

homework in various subjects showed that the assignment and completion of homework yields positive effects on academic achievement. The effects are almost tripled when teachers take time to grade the work, make corrections and specific comments on improvements that can be made, and discuss problems and solutions with individual students or the whole class. Homework also seems particularly effective in high school.

Like a three-legged stool, homework requires a teacher to assign it and provide feedback, a parent to monitor it, and a student to do it. If one leg is weak, the stool may fall down. The role of the teacher in providing feedback—in reinforcing what has been done correctly and in reteaching what has not—is key to maximizing the positive impact of homework.

Districts and schools that have well-known homework policies for daily minutes of required work are likely to reap benefits. Homework "hotlines" in which students may call in for help have proven useful. To relieve some of the workload of grading, teachers can employ procedures in which students grade their own and other students' work. In this way, they can learn cooperative social skills and how to evaluate their own and others' efforts.

The quality of homework is as important as the amount. Effective homework is relevant to the lessons to be learned and in keeping with students' abilities.

Direct Teaching

Many studies show that direct teaching can be effective in promoting student learning. It emphasizes systematic sequencing of lessons, a presentation of new content and skills, guided student practice, feedback, and independent practice by students. The traits of teachers employing effective direct instruction include clarity, task orientation, enthusiasm, and flexibility. Effective direct teachers also clearly organize their presentations and occasionally use student ideas.

The use of direct teaching can be traced to the turn of the century; it is what many citizens and parents expect to see in classrooms. Done well, it can yield consistent and substantial results. The usual aspects of direct teaching are as follows:

- Daily review, homework check, and, if necessary, reteaching
- Presentation of new content and skills in small steps
- Guided student practice with close teacher monitoring
- Corrective feedback and instructional reinforcement
- Independent practice in seatwork and homework with a high (more than 90 percent) success rate
- Weekly and monthly reviews

Organized Lessons

Showing students the relationships between past learning and present learning increases its depth and breadth. More than a dozen studies show that when teachers explain how new ideas in the current lesson relate to ideas in previous lessons and other prior learning, students can connect the old with the new, which helps them better remember and understand. Similarly, alerting them learn key points allows them to concentrate on the most crucial parts of the lessons.

Well-organized lessons enable students to focus on key ideas and concentrate on the relations among them. Moreover, understanding the sequential or logical continuity of subject matter can be motivating. If students simply learn one isolated idea after another, the subject matter may appear arbitrary. But having a "mental road map" of what they have accomplished, where they are presently, and where they are going can help them avoid unpleasant surprises and set realistic goals. Similar effects can be accomplished by goal setting, overviewing, and pretesting that sensitizes students to important points and questions in textbooks and by teachers.

It may also be useful to show students that what they are learning solves problems that exist in the world outside school, problems they are likely to encounter in life. For example, human biology that features nutrition and exercise applications is likely to be more interesting than molecular biology, at least for beginning students. Teachers and textbooks can sometimes make effective use of graphic organizers. Maps, timetables, flow charts depicting the sequence of activities, and other such devices may be worth hundreds of words. They may also be easier to remember.

Learning Strategies

Giving students some choice in their learning goals and teaching them to be attentive to their progress can yield learning gains. In the 1980s, reformers sought ways to encourage self-monitoring, self-teaching, or "meta-cognition" to foster both achievement and independence. They viewed skills as important, but the learner's monitoring and management of his or her own learning had primacy, since citizens in democratic societies are expected to learn and think for themselves. This approach transfers to learners part of the direct teaching functions of planning, allocating time, and review. Being aware of what goes on in one's mind during learning is a critical first step to effective independent learning.

Some students lack this self-awareness and must be taught the skills necessary to monitor and regulate their own learning. Many studies have demonstrated that positive effects can accrue from developed skills. Such effort can be premature and overdone, however, since it would be wasteful to expect students to rediscover large parts of knowledge on their own.

Students with a repertoire of learning strategies can measure their own progress toward explicit goals. When students use these strategies to strengthen their opportunities for learning, they increase their knowledge as well as their sense of self-control and positive self-evaluation.

Three possible phases of teaching about learning strategies are as follows:

- Modeling, in which the teacher exhibits the desired behavior
- Guided practice, in which students perform with help from the teacher
- Application, in which students act independently of the teacher

As an example, a successful program of "reciprocal teaching" fosters reading comprehension by having students take turns in leading dialogues on pertinent features of texts. By assuming the roles of planning, preparation, and monitoring ordinarily exercised by teachers, students can learn self-management and how to collaborate as well as gain knowledge and skills. Perhaps that is why tutors learn from tutoring and why it is said, "To learn something well, teach it."

Tutoring and Computer-Assisted Instruction

Teaching a single student or a small number with the same abilities and instructional needs can be remarkably effective because such tutoring suits learning to student needs. It has yielded large learning effects in several dozen studies. It yields particularly large effects in mathematics—perhaps because of the subject's well-defined sequence and organization. If students fall behind in a fast-paced mathematics class, they may never catch up unless their particular problems are identified and remedied.

The process of individualized assessment and remediation is a virtue of tutoring and other means of adapting instruction to an individual learner's needs. Computer-assisted instruction, for example, has a long history of success for the same reason.

Tutoring of slower or younger students by more advanced students appears to work nearly as well as teacher tutoring; with sustained student practice, it might be equal to teacher tutoring in some cases. Still, it is possible to

abuse this technique, and advanced students need the significant challenge of their own peers.

Peer tutoring among equals also can promote effective learning, in tutors as well as tutees. Organizing one's thoughts to impart them intelligibly to others, becoming conscious of the value of time, and learning managerial and social skills are some of the side benefits for tutors.

Even slower-learning students and those with disabilities can teach others if they are given the extra time and practice that may be required to master specialized knowledge or skills. This can give them a positive experience and increase their feelings of self-esteem. Again, moderation may be crucial.

CONDITIONS FOR EFFECTIVE TEACHING

The methods described in the last section are hardly astonishing. They reflect not only research findings but also common sense and personal experiences we may have had with our better teachers. What is astonishing is that they are so seldom practiced or well practiced. Because policy makers, citizens, and parents now more fully realize both the need and the potential to raise achievement substantially, they need to know about what promotes good teaching methods. Unfortunately, the research on this important matter is neither voluminous nor as rigorous as the control-group studies on teaching methods. Some expert syntheses, large-scale surveys, and case studies of outstanding schools that attain exceptional achievement do provide useful and promising insights.

Indicators of School Quality

The National Society of School Evaluation (NSSE) is the research arm of regional-school accrediting groups such as the New England Association. A few years ago, the NSSE sought from leading authorities the school features and activities associated with high levels of achievement. Translated into observable indicators, these are shown in Table 2.

TABLE 2　Indicators of School Quality Associated with Achievement

A. Curriculum
1. Develops quality curriculum
2. Ensures effective implementation and articulation of curriculum
3. Evaluates and renews the curriculum
B. Instructional design
1. Aligns instruction with goals
2. Employs data-driven instructional decision making
3. Actively engages students in their learning
4. Expands instructional support for student learning
C. Assessment
1. Clearly defines the expectations for student learning
2. Establishes the purpose of assessment
3. Selects the appropriate method of assessment
4. Collects a comprehensive and representative sample of student achievement
5. Develops fair assessments and avoids bias and distortion
D. Educational agenda
1. Facilitates a collaborative process in developing a shared vision
2. Develops a shared vision, beliefs, and mission
3. Defines measurable goals focused on students' learning
E. Leadership for school improvement
1. Promotes quality instruction by fostering an academic learning climate
2. Develops schoolwide plans for improvement
3. Employs effective decision making
4. Monitors progress in improving student achievement and instructional effectiveness
5. Provides skillful stewardship
F. Community building
1. Fosters community-building conditions within the school
2. Extends the school community through collaborative networks and improvement
G. Continuous improvement and learning
1. Builds skills and capacity for improvement through comprehensive and ongoing professional development
2. Creates the conditions that support productive change

These indicators can serve educators and school boards that want to assess their programs. The NSSE provides the more detailed indicators, forms, and procedures for self-assessment.

Successful Schools for Students in Poverty

Students in poverty are often low academic achievers. These students are more often subject to premature birth, low birth weight, and early stress and disease. Their mothers are more often teens, single, or divorced; they move more frequently. They may be less able to provide the experiences and child-rearing practices associated with academic achievement, such as leisure reading and vocabulary building. For this reason, Gordon Cawelti[4] studied six high-performing schools around the country that seemed to overcome such risks of achievement failure. The schools shared the following features:

- There is a focus on clear standards and on improving results.
- Teamwork helps ensure accountability.
- The principal is a strong leader.
- Teachers are deeply committed to helping all students achieve.
- Multiple changes are made to improve the instructional life of students, and these efforts are sustained in concert.

Competitive and Cost-Effective Private Schools

Although U.S. schools make the least progress in reading, mathematics, and science during the school years, the per-student costs of their schools are third-highest among two dozen economically advanced countries. Market theorists

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[4]Gordon Cawelti, *Portraits of Six Benchmark Schools: Diverse Approaches to Improving Student Achievement* (Alexandria, Va.: Educational Research Service, 1999).

believe that the lack of competition among public schools is their downfall. In this view, private schools that must charge tuition and compete in the marketplace for students should not only be more effective but also more cost-efficient.

Although this hypothesis is not restricted to Catholic schools, most of the research has focused on them. There are more of them, and they often have cost data and uniform standardized testing. This allows comparison with public schools in their neighborhoods that serve students from the same socioeconomic and ethnic backgrounds. Sociologists and economists who study this question also try to control for such things as parent motivation, education, and other factors.

In my view, the clear weight of the evidence suggests that, other things being equal, students in Catholic schools, many of whom are minorities and not Catholic, do better and that the costs are less than half those of public schools even when special education students and their costs are omitted from the analysis. Valerie Lee[5] identified the distinctive features of Catholic schools that yield such efficiency:

A. A delimited core curriculum followed by all students, regardless of their family background, academic preparation, or future educational plans

B. Caring organization
  1. Frequent opportunities for face-to-face interactions and shared experiences among adults and students
  2. Common curriculum and school events—athletics, drama, music
  3. Teachers see responsibilities beyond classroom subject matter—extending into hallways, school grounds, neighborhood, and homes
  4. Shared beliefs about what students should learn

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[5]Valerie Lee, "Catholic Lessons for Public Schools," in Diane Ravitch, ed., *New Schools for a New Century* (New Haven, Conn.: Yale University Press): 147–163.

   C. Decentralized governance
      1. Small central office for the system
      2. Principal has considerable control over daily operations
      3. Principal selected from faculty
      4. Important decisions made at the school site

We might also expect efficiency from ordinary Jewish, Lutheran, and other parochial and independent schools that must compete for urban students in the marketplace.

Turning Around the Chicago System

When U.S. Secretary of Education Bill Bennett declared the Chicago public schools the worst in the nation, the district had a miserable track record. Eighty-four percent of the district's children were in poverty, and the district contained 80 percent of the state's bilingual children. Chicago had suffered eight teacher strikes in fifteen years, had a continuing financial crisis, and saw an enrollment decline of 29 percent, to 433,000 students—all of which united parents, citizens, and business leaders.

In response, the Illinois legislature forbade a teacher strike for five years and allowed Mayor Richard Daley to appoint his own board and top staff, including Chief Executive Officer Paul Vallas and Chief Education Officer Cozette Buckney. Under board direction, they simultaneously made achievement the clear priority; imposed rigorous accountability on principals, teachers, and students; vastly enlarged private competitive contracting; and granted charters to publicly funded, privately governed schools.[6]

The mayoral team members terminated 2,000 nonteaching positions and transferred the savings to schools for direct student services. They soon terminated 36 principals for failure to progress. Teachers from "reconstituted" failing

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[6]Richard P. Niemiec and Herbert J. Walberg, eds., *Evaluating Chicago School Reform: New Directions in Program Evaluation, a Publication of the American Evaluation Association* (San Francisco: Jossey-Bass, 1993).

schools were replaced by a new staff and had ten months to find another job in the system or face unemployment. For Chicago's many poorly prepared teachers, the team provided lesson plans developed by skilled teachers.

The team transferred to alternative schools students who had twenty unexcused absences, records of assaults, or records of carrying weapons. As mentioned earlier, students falling sufficiently behind their grade levels were given the choice of grade retention or trying to make up for poor achievement in intensive summer schools. The results were as follows:

- Three years of rising test scores in all subjects
- Attendance at 90 percent for the first time in fifteen years
- Truancy cut in half
- Enrollment up by about 30,000 students

This results-oriented, businesslike, "tough love" approach has become a model for other city systems. The Chicago leadership recently announced that it would begin grading parents for their efforts, and the school board has allowed charter schools to flourish. If they can provide models and competition for other conventionally governed schools, so much the better.

Successful State Initiatives

Finally, states can create the conditions for improved teaching and learning. For the National Education Goals Panel, David Grissmer and Ann Flanagan carried out case studies of Texas and North Carolina, states that stood out in making gains on the National Assessment of Educational Progress examinations, in reducing the achievement gap between disadvantaged and other students, and in spending less per pupil than did other states. How did they do it?

The states were similar to one another, and their experiences parallel some of the findings already described. They created statewide-aligned systems of standards, curriculum, and assessments. They held schools accountable for improvement by all students. They achieved critical support

from business in developing and sustaining changes over time. They provided financial rewards for schools based on performance and could disenfranchise school districts and remove principals because of poor performance.

The researchers speculated that such conditions caused more specific teaching objectives and that teachers increased the time and attention devoted to achieving the learning standards. They concluded that several reforms implemented by other states make for no difference in better achievement, namely, per-pupil spending, teacher/pupil ratios, teachers with advanced degrees, and experience levels of teachers.

CONCLUSION

Effective teaching methods hardly seem a mystery. Much research bears out the commonsense principles many of us saw our better teachers practice. To solve the American achievement problem, we need to take these principles seriously. We need to put them into practice with respect to the amount of time students study within and outside their classes. We need to organize the subject matter so that it's conveyed clearly and efficiently. And we need good pedagogy.

The mystery seems to be why such principles are not already in place. But it is becoming clear that school, district, and state policies can encourage the implementation of effective principles. These policies include setting achievement priorities; establishing and aligning goals, content, and tests; measuring results; and holding the chief players accountable. In turn, these policies may require (1) carrots and sticks or (2) parent choice of schools, including public, parochial, and independent for-profit and not-for-profit all competing for customers or (3) both.