

Teachers Are Made, Not Born

Teacher education programs must not perish beneath the budget cutting-axe; they *do* produce better teachers.

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As colleges and state legislatures see the need to cut programs and faculties for economic reasons, teacher education is a likely target. In Virginia, for example, the board of education and legislature are considering a proposal to reduce the requirements for secondary certification to a liberal arts degree with a two-year probationary period in the schools.

It is ironic that such a recommendation comes at a time when a wealth of information from research in edu-

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cation and related fields promises to transform classroom teaching. The knowledge base for teacher education is changing as rapidly today as the development of medical knowledge early in this century.

In 1910, Abraham Flexner was commissioned by the Carnegie Foundation to study the education of medical doctors. At that time most doctors were trained under an apprentice system, medical schools were numerous, and standards were lax. Flexner insisted that medical education should be rooted in the principles of natural science and that standards should be rigorous. His report and the debates that followed resulted in a rapid transformation of medical education.

The curriculum for the schools of medicine was redesigned and any schools that didn't conform to the standards went out of business. What was taught in one year at the turn of the century now requires many years of intensive study and practice.

Well-designed teacher preparation programs expose students to classroom realities in increasingly complex amounts of theory and practice until prospective teachers are ready for complete responsibility and can respond appropriately and spontaneously at the rate of a thousand interactions a day. Four years of college are barely enough. In fact, many educators are saying quality teacher training cannot be done in less than five or six years. The trend is toward a longer period of preparation time to accommodate the full complement of necessary content and experience.

Thus, the challenge facing teacher educators today is proving to budget-weary legislatures, to a skeptical public, and to our students and teachers that what we are able to teach in education courses really can make a difference in classroom practices. Research indicates that the application of educational concepts has improved teaching in several areas: understanding child behavior, constructing and interpreting tests, monitoring and increasing academic learning time, and applying principles of child growth and development.

Understanding Child Behavior

One necessary component of teacher education is how to observe and interpret child behavior. Child growth and development courses bring teachers to general understandings of why youngsters behave as they do, but they alone do not provide adequate preparation. Without appropriate training and practice in how to observe and record behavior, teachers typically cannot separate fact from opinion, diagnose individual behavior accurately, or understand why individual children do what they do.

A solid body of research shows that as teachers learn to observe, record, and interpret behavior, their teaching improves substantially as do their self-confidence and professional attitudes.¹ Child study takes time. It takes more than a few lectures or books. Many teacher education programs include solid training and prac-



Time-on-task includes teacher-led instructions.

tice in behavior observation and interpretation.

Constructing and Interpreting Tests

Another critical area of professional studies is test construction and interpretation. All teachers use tests. They must construct tests to fit their own particular teaching objectives since the tests they have been exposed to in college do not usually provide appropriate models for elementary and secondary situations. Teachers need to understand a considerable range of instruments — including aptitude, achievement, nonverbal, verbal, and sociometric tests — if they are to know the options for assessing their classes and prescribing appropriate instruction. Sociometric techniques, for example, have been used as a basis for grouping children and improving motivation and achievement test scores.

Teachers need to understand how to select or construct questions to match their objectives, to recognize cultural biases in test questions, and to appreciate both the limitations and uses of tests. They need to understand how to measure and judge test reliability and validity. Studies have shown that judgments teachers make about children on the basis of test results and classroom performance influence what they expect of them and how they treat them.² Over time, these attitudes tend to inflate or deflate children's learnings independently of their real ability. One way to counter this "Pygmalion effect" is to require teachers to have more than a superficial understanding of tests.

Monitoring and Increasing Academic Learning Time

The amount of time pupils are involved with specific academic content



Utilizing a variety of tests and evaluation procedures.

is highly related to how much of that content they learn.³ Great differences exist from class to class, school to school, and even state to state in total academic learning time, the kind of content taught, the amount of teaching of particular content, and the extent of students' active involvement.

Academic learning time (ALT) varies with the length of the school year, the number of hours in a school day, the amount of absenteeism, the time it takes to change classes and organize class activities. Time-on-task for pupils depends on how quickly classes get down to work and how much distraction and nonproductive time exists. The latter varies from pupil to pupil, but teachers' overall class management practices have considerable influence.

Fifty percent greater gains in achievement test scores have been reported in school settings that provide only 25 percent more academic learning time than otherwise comparable settings.⁴ ALT research offers very promising suggestions of how schools and individual teachers might enhance academic achievement. But just reading or hearing about the research is not sufficient. Teachers need to understand how ALT is assessed and establish ways to accomplish it. They have to know how to conduct task analyses of instructional materials and establish an observation system for monitoring time-on-task for individual pupils.

All of these activities are essential if the ALT concept is to be utilized fully and instruction improved as a result. It is not sufficient for school principals and supervisors to understand and implement the system. Teachers themselves must be fully involved. ALT data obtained in individual classrooms can stimulate teachers to reassess and improve their teaching procedures.⁵

Applying Principles of Child Growth and Development

There is a growing understanding that children are not small adults who only need to know more, but are unique human beings who move through predictable stages of development. The success of the middle school movement, for instance, will depend largely on teacher education that prepares teachers and administrators for this particular level of

schooling and for the developmental needs of the pre- and early adolescent.⁶ Lack of such preparation will probably stifle the development of effective middle schools as it did the junior high school movement.

Sometimes our "proof" that the theory presented to teachers in education courses actually has a positive effect on classroom practices must be collected anecdotally. For example, a high school science teacher reported that, as a result of studying developmental stages in a graduate seminar, he tested some of his remedial ninth-grade science students in Piagetian conservation tasks and found that five of them could not complete tasks indicative of the stage of formal operations. Realizing that the objectives of the course were unattainable for these students, he rewrote their program using simpler concepts. His results were gratifying.

Teachers do not change much by reading a book or hearing a lecture. Seeing ways of handling situations other than their own and reflecting on their own teaching, especially with the help of videotaping or data analysis, is generally more productive. Again, to obtain significant benefits, considerable time and effort must be expended. It cannot be done in two or three lectures.

There are many other essential concepts and skills for the practicing teacher:

- Curriculum analysis and design
- Selecting and specifying learning objectives
- Theories of learning related to fact and skill learning, concept development, and attitude formation and change
- The use of microcomputers and computer-assisted instruction
- Peer tutoring
- Group dynamics as related to grouping practices
- Identifying and referring exceptional children: handicapped and gifted
- Findings of classroom teaching/learning research
- Code of ethics for teachers
- History of American public education
- Differing philosophies of education
- The social, historical, political, and economic basis of the American system of public education

- Alternative models of teaching
- Varieties of instructional materials and techniques
- Question-asking strategies
- Legal responsibilities of teachers: child abuse, punishment limitations, and so on
- Career education.

This list is not complete, but it indicates a wide range of topics included in professional education courses and research. Some of them have been mandated by legislatures; others, by teachers themselves. Each of these topics has made a difference in classroom instruction for some teachers; each offers promise for improving classroom teaching and pupil learning. When educational research and theory are examined closely and taught well, they can improve the quality of teaching substantially. ■

¹ Richard M. Brandt, "The Child Study Movement," in *Cultural Pluralism and Social Change*, ed. Richard M. Brandt and others (Washington, D.C.: U.S. Department of Health, Education, and Welfare), pp. 10-51.

² Robert Rosenthal and Lenore Jackson, *Pygmalion in the Classroom: Teacher Expectation and Pupil's Intellectual Development* (New York: Holt, Rinehart & Winston, 1968); Thomas L. Good, "Teacher Expectations and Student Acceptance: A Decade of Research," *Educational Leadership* 38 (February 1981): 415-422.

³ Carolyn Denham and Ann Lieberman, eds., *Time to Learn* (Washington, D.C.: U.S. Department of Education, National Institute of Education, May 1980).

⁴ David E. Wiley and Annegret Harnischfeger, "Explosion of a Myth: Quantity of Schooling and Exposure to Instruction, Major Educational Vehicles," *Educational Leadership* 31 (April 1974): 9.

⁵ Jane Stallings, Margaret Needels, and Nicholas Stayrook, *How to Change the Process of Teaching Basic Reading Skills in Secondary Schools: Phase II and Phase III, Final Report* (Palo Alto, Calif.: SRI International, 1979).

⁶ Jeanne B. Hubert, "Junior High Image: How Can It Be Improved?" in *Education for the Middle School Years: Readings*, ed. James E. Hertling and Howard G. Getz (Ill.: Scott, Foresman and Co., 1971), p. 116-121.

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