Wisconsin Family Impact Seminars

Briefing Report

Enhancing Educational Performance: Three Policy Alternatives

University of Wisconsin-Extension
Center for Excellence in Family Studies
School of Human Ecology
University of Wisconsin-Madison

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First Edition

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Briefing Report

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Purpose, Presenters, and Publications

Family Impact Seminars have been well received in Washington, D.C., by federal policymakers, and Wisconsin is one of the first states to sponsor the seminars for state policymakers. Family Impact Seminars provide state-of-the-art research on current family issues for state legislators and their aides, Governor's Office staff, state agency representatives, educators, and service providers. Based on a growing realization that one of the best ways to help individuals is by strengthening their families, Family Impact Seminars analyze the consequences an issue, policy, or program may have for families.

The seminars provide objective nonpartisan information on current issues and do not lobby for particular policies. Seminar participants discuss policy options and identify common ground where it exists.

"Enhancing Educational Performance: Three Policy Alternatives" is the 11th seminar in a series designed to bring a family focus to policymaking. This seminar featured the following speakers:

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Each seminar is accompanied by an in-depth briefing report that summarizes the latest research on a topic and identifies policy options from across the political spectrum. Copies are available at Extension Publications, 630 West Mifflin Street, Room 170, Madison, WI 53703, (608) 262-3346 (voice and TDD); (608) 265-8052 (fax).

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Enhancing Educational Performance: Three Policy Alternatives	Mar. 1998

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Executive Summary

The vision of higher standards to be achieved by every student is the most ambitious challenge American public education has ever faced. This report overviews what we know about improving student achievement and discusses three policy alternatives from across the political spectrum: changes in the school aid formula, strategies for involving families and communities in school reform, and ways of improving teacher practice.

Lynn Magdol of the State University of New York-Buffalo discusses a number of risk factors that influence academic achievement in adolescence. To improve educational performance, we need comprehensive approaches that address individual academic and social skills, family dynamics, peer influence, school characteristics, and community support. Educational performance is much too complex and the solutions much too comprehensive to respond to any single policy or program.

According to Andrew Reschovsky, UW-Madison, most children in Wisconsin receive a high-quality education. Yet there is ample evidence that public education fails to provide all children with an adequate education. Educational adequacy is a minimum acceptable level of educational outcomes, such as a certain level of proficiency in reading, writing, or math.

In Wisconsin, the primary focus of the school finance system has been on achieving equity rather than educational adequacy. Wisconsin's existing school aid formula has been quite successful in guaranteeing that all school districts that choose the same property tax rate will have approximately the same amount of money available to spend on education. But even if Wisconsin achieves a high degree of equity in school finance, there is no reason to believe that it will have provided an adequate education for all its students. One of the primary reasons why equal spending doesn't necessarily result in equal educational outcomes is that costs differ across school districts.

In Wisconsin, the cost of education, as in "shared cost" in the aid formula, means how much we spend on education. When business people and economists talk about costs, they mean the value of the resources necessary to produce a given amount of a particular good or service. Thus, the cost of education refers to the amount of money a school district must spend to achieve any particular educational outcome, such as providing all children with an equal opportunity to read at the fourth-grade level by the end of the fourth grade.

Some school districts, due to factors over which they have no control, must spend more money to achieve the same educational goal. For example, costs will be higher in districts with more children who are disabled, have limited knowledge of English, or come from single-parent, low-income families. Costs will be greater in high-cost-of-living areas or in very small districts, where they are unable to take

advantage of economies of scale. This paper explains why guaranteeing an adequate education for all students requires that state aid formulas account for cost differences across school districts.

According to Anne Henderson in a recent report issued by 44 educational reform organizations, a fundamental flaw of the reform move-ment is that parents and communities are not included in meaningful ways. A recent survey found that 60% of Americans believed parents and the community should have more say in basic decisions in schools. Yet only 25% of teachers and 15% of administrators approved of greater parental involvement in decisions. Research clearly shows that when parents have many opportunities to be involved in the school, their children benefit in the following ways: higher grades and test scores, better attendance and more homework done, fewer placements in special education, more positive attitudes and behavior, higher graduation rates, and greater enrollment in postsecondary education.

The benefits extend to families too. Parents develop more confidence in the school. The teachers of their children have higher opinions of them as parents and higher expectations of their children. As a result, parents develop more confidence, not only about helping their children learn, but also about themselves as parents. Often the involvement encourages parents to seek more education.

Parents can be involved in three primary ways: (a) pushing the system for higher standards, effective systems of accountability, and the adoption of school reform; (b) helping design local school improvement by participating in school improvement committees, monitoring results, checking student work to make sure it reflects high standards, and insisting on report cards designed so parents can see how students are progressing; and (c) taking part in opportunities for parent involvement by participating in school governance councils, helping obtain resources to improve the schools, and attending staff development sessions.

Professor James Spillane of Northwestern University conducted a 5-year study of how teachers changed their classroom practices. Spillane surveyed all third- and fourth-grade teachers and all seventh-and eighth-grade math and science teachers in nine Michigan school districts. The study was conducted after the state introduced a school accreditation process that required schools to have 65% of students score in the satisfactory range on state tests, or lose state accreditation.

Spillane observed and interviewed a subsample of 25 teachers who said they had changed their teaching practices to fit with the state reforms. Yet the evidence revealed that only 4 teachers had extensively changed the core of their practice. How did this change occur?

One of the teachers who changed was a risk taker who was always in search of new ideas. Her undergraduate education prepared her to teach in ways advocated by the reforms without unlearning a lot of what she understood about teaching. But absent this individual initiative, support was needed for the other three veteran teachers to change. The professional development workshops that

most teachers attended were too brief, with no sustained attention to enacting a reform idea. These three teachers claimed that study groups and the opportunity to talk with their colleagues and outside experts contributed to their ability to revise their teaching practices. These teachers developed a sense of obligation to their colleagues to change. In other words, peer pressure motivated teachers to reform their practice. Observing how positively students responded provided yet another incentive.

For policymakers, this study suggests that state policy initiatives, such as holding schools accountable for student performance on state tests, were effective in getting teachers' attention. Yet policy alone failed to change the core of teaching practice. The most effective way to do this is to encourage teachers to learn about the reforms and to share ideas and teaching strategies both with each other and with experts.

A Checklist for Assessing the Impact of Policies on Families

The first step in developing family-friendly policies is to ask the right questions:

- What can government and community institutions do to enhance the family's capacity to help itself and others?
- What effect does (or will) this program (or proposed policy) have for families? Will it help or hurt, strengthen or weaken family life?

These questions sound simple, but they can be difficult to answer.

The Family Criteria (Ad Hoc) Task Force[1] developed a checklist to assess the intended and unintended consequences of policies and programs on family stability, family relationships, and family responsibilities. The checklist includes six basic principles about families that serve as the measure of how sensitive to and supportive of families policies and programs are. Each principle is accompanied by a series of family impact questions.

The criteria and questions are not rank ordered (Ooms & Preister, 1988). Sometimes these criteria conflict with each other, requiring trade-offs. Cost effectiveness also must be considered. Some questions are value-neutral. Others incorporate specific values. People may not always agree on these values, so sometimes the questions will require rephrasing. However, this tool reflects a broad, nonpartisan consensus, and it can be useful to people across the political spectrum.

Checklist: A Tool for Analysis

Check all that apply. Record the impact on family well-being.

1. **Family support and responsibilities.** Policies and programs should aim to support and supplement family functioning and provide substitute services only as a last resort.
   - How does the proposal (or existing program) support and supplement parents' and other family members' ability to carry out their responsibilities?
   - Does it provide incentives for other persons to take over family functioning when doing so may not be necessary?
   - What effects does it have on adult children's ties to their elderly parents?

[1]Adapted from T. Ooms & S. Preister (Eds.) (1988). In *A strategy for strengthening families: Using family criteria in policymaking and program evaluation.* Washington, DC: Family Impact Seminar.

- To what extent does the policy or program enforce absent parents' obligations to provide financial support for their children?
- Does the policy or program build on informal social support networks (such as community/neighborhood organizations, churches) that are so essential to families' daily lives?

2. **Family membership and stability.** Whenever possible, policies and programs should encourage and reinforce marital, parental, and family commitment and stability, especially when children are involved. Intervention in family membership and living arrangements is usually justified only to protect family members from serious harm or at the request of the family itself.
   - What incentives or disincentives does the policy or program provide to marry, separate, or divorce?
   - What incentives or disincentives are provided to give birth to, foster, or adopt children?
   - What effects does it have on marital commitment or parental obligations?
   - How does the policy or program enhance or diminish parental competence?
   - What criteria are used to justify removal of a child or adult from the family?
   - What resources are allocated to help keep the family together when this is the appropriate goal?
   - How does the policy or program recognize that major changes in family relations such as divorce or adoption are processes that extend over time and require continuing support and attention?
3. **Family involvement and interdependence.** Policies and programs must recognize the interdependence of family relationships, the strength and persistence of family ties and obligations, and the wealth of resources that families can mobilize to help their members.
   - To what extent does the policy or program recognize the influence of the family and family members upon individual needs or problems?
   - To what extent does it involve immediate and extended family members in working toward a solution?
   - To what extent does it acknowledge the power and persistence of family ties, especially when they are problematic or destructive?
   - How does it assess and balance the competing needs, rights, and interests of various members of a family? In these situations, what principles guide decisions (i.e., the best interests of the child)?

4. **Family partnership and empowerment.** Policies and programs must encourage individuals and their close family members to collaborate as partners with program professionals in delivery of services to an individual. In addition, parent and family representatives are an essential resource in policy development, program planning, and evaluation.

   - In what specific ways does the proposed or existing program provide full information and a range of choices to families?
   - In what ways do program professionals work in collaboration with the families of their clients, patients, or students?
   - In what ways does the policy or program involve parents and family representatives in policy and program development, implementation, and evaluation?
   - In what ways is the policy or program sensitive to the family's need to coordinate the multiple services they may require?

5. **Family diversity.** Families come in many forms and configurations, and policies and programs must take into account their different effects on different types of families. Policies and programs must acknowledge and value the diversity of family life and not discriminate against or penalize families solely for reasons of structure, roles, cultural values, or life stage.

   - How does the proposal or program affect various types of families?
   - If the proposed or existing program targets only certain families, for example, only employed parents or single parents, what is the justification? Does it discriminate against or penalize other types of families for insufficient reason?
   - How does it identify and respect the different values, attitudes, and behavior of families from various racial, ethnic, religious, cultural, and geographic backgrounds that are relevant to program effectiveness?

6. **Targeting vulnerable families.** Families in greatest economic and social need, as well as those determined to be most vulnerable to breakdown, should have first priority in government policies and programs.

   - Does the proposed or existing program identify and target publicly supported services for families in the most extreme economic or social need?
   - Does it give priority to families who are most vulnerable to breakdown and have the fewest supports?
   - Are efforts and resources targeted on preventing family problems before they become serious crises or chronic situations?

Risk Factors for Adolescent Academic Achievement

Lynn Magdol

The Carnegie Council on Adolescent Development estimates that about one quarter of the adolescent population is at risk of academic failure and other problem behaviors. Another quarter is considered "moderately" at risk (Carnegie Council on Adolescent Development, 1989, p. 8). The most serious of the problems associated with school failure is the almost inevitable unemployment or underemployment that follows.

The costs to society and to the individual are high. The nation pays the price not only in welfare payments, but in an estimated $260 billion in lost earnings and tax payments (Carnegie Council on Adolescent Development, 1989, p. 29).

Prevalence of low academic achievement

Academic achievement is measured in a variety of ways. The most commonly cited indicator is the rate of high school completion. Statistics also are available on grades, standardized test scores, absenteeism, suspensions and expulsions, and the percentage of students who have been held back. The following are often cited indicators of low achievement.

Being below grade level

Many students who repeat a grade ultimately will become discouraged and drop out of school altogether (Carnegie Council on Adolescent Development, 1989; Mahan & Johnson, 1983; Massachusetts Advocacy Center, 1988; National Commission on Children, 1991). According to 1988 data, 35% of male and 25% of female 13-year-olds are behind their age peers. African American males have especially high retention rates, approaching 50% (National Center for Education Statistics, 1991, p. 24).

Low achievement test scores

Adolescents in the United States are behind their peers in other countries in mathematics and science scores (National Center for Education Statistics, 1991, p. 38). Substantial numbers are deficient in basic reading comprehension and critical thinking skills (Carnegie Council on Adolescent Development, 1989; National Commission on Children, 1991). According to recent estimates, less than half of 17-year-olds have the basic skills necessary for employment or continuing education (National Commission on Children, 1991).

Dropping out

Rates of high school attendance have improved in this century (Center for the Study of Social Policy, 1986). However, dropping out is still a concern because it

is associated with high social costs—lower earnings and higher rates of unemployment, welfare dependency, and criminal behavior (Carnegie Council on Adolescent Development, 1989; Center for the Study of Social Policy, 1986). African Americans and Hispanics have higher dropout rates than Whites. Overall, males have higher dropout rates than females; African American females, however, exceed Black males in dropout rates (National Center for Education Statistics, 1991, p. 26).

An estimated 40% of children in the United States are at risk for school failure due to poverty, race, immigration, poor English language skills, living in a single-parent family, parents with little education, or health problems (National Commission on Children, 1991).

By considering all of these factors together, we can formulate a strategy for prevention.

This paper discusses risk factors that influence academic achievement. A risk-focused, ecological approach (Bogenschneider, 1996) identifies factors in the various environments that influence adolescent development. By considering all of these factors together, rather than in isolation from each other, we can begin to formulate a strategy for prevention.

Individual factors

Poor self-concept and low sense of control

Dropouts have poorer self-concepts than their peers who stay in school. Dropouts are more apt to believe they have little control over their own fate (Ekstrom, Goertz, Pollack, & Rock, 1986). Dropouts also have less sense of efficacy or responsibility (Sewell, Palmo, & Manni, 1981). We don't know if low self-confidence is the cause of doing poorly in school or if poor school performance causes a negative self-concept. Recent research supports the latter view, suggesting that improving school performance may enhance self-confidence (Steinberg, 1989; Sundius, Entwisle, & Alexander, 1991).

Alienation from school

High school dropouts do not feel a strong sense of belonging to their school (Mahan & Johnson, 1983) and are not very interested in school (Ekstrom et al., 1986; Mahan & Johnson, 1983). Many cite racial prejudice and discrimination as the reason (Center for the Study of Social Policy, 1986). Dropouts report less satisfaction and less effort in school, lower participation in extracurricular activities, more positive attitudes toward work than toward school, and lower aspirations for postsecondary education (Ekstrom et al., 1986).

Behavior problems

Elementary children who are highly aggressive are less likely to graduate from high school or pursue any college training (Lambert, 1988). By age 17 or 18, children who are hyperactive are more likely to achieve poorly, attend a special school, or drop out (Lambert, 1988). Dropouts more frequently skip classes and are absent or late. They more often are disciplined or suspended (Ekstrom et al.,

1986). Among high school students, problems with interpersonal relations and being less popular are associated with dropping out (Ekstrom et al., 1986).

Social skills training in early adolescence has proven an effective strategy for preventing smoking, marijuana use, early sexual activity (Ellickson, 1997; Howard-McCabe, 1990), and school failure. Larson (1989) describes a training program that emphasized impulse control, self-monitoring, perspective-taking, and problem-solving. Individuals in the treatment group showed less frequent expulsions and improvements in both academic and behavior ratings on their report cards.

Social skills training in early adolescence has proven an effective strategy for preventing school failure.

Drug and alcohol use and abuse

Adolescents who use drugs and alcohol are less likely to finish high school (Lambert, 1988). Average achievers are twice as likely to have used marijuana in the past week (12.9%) as high achievers (6.6%). No definite conclusions can be drawn about drug use as a cause or consequence of academic problems.

Delinquent behavior

High school students who have encounters with the police or criminal justice system are more likely to be dropouts than those who have not (Ekstrom et al., 1986).

Incompatible learning style

Dropouts usually don't do well in learning situations where they work alone. They are more authority-oriented and prefer more teacher assistance, but they resist assistance from other adults. Dropouts also prefer a varied learning environment that includes visual, auditory, tactile, and kinesthetic teaching styles. Dropouts are less alert in the morning and more alert in the evening than others (Gadwa & Griggs, 1985).

Earlier school problems

Earlier school problems may be at the root of academic failure in high school. Many students, especially minorities, decide to leave school during early adolescence, and a substantial number drop out of school before the end of the 10th grade (Carnegie Council on Adolescent Development, 1989). Poor performance in school leads to discouragement and to dropping out (Ekstrom et al., 1986; Gadwa & Griggs, 1985; Steinberg, Blinde & Chan, 1984). Special problem-solving skills training for a group of low-income minority 6th graders resulted in improved grades 40 weeks later (Larson, 1989).

Family factors

Low socioeconomic status

An adolescent from a family of lower socioeconomic status is more likely to leave high school before finishing (Ekstrom et al., 1986) and less likely to attend college (Lambert, 1988). According to a report by the National Commission on Children (1991), adolescents from low-income families are more likely to lack ba-

sic academic skills and to have repeated a grade as children. They are at risk for poorer health and nutrition. Poor families are likely to live in poor school districts with fewer resources to offer their students. Adolescents in low-income families are more likely to be employed, which may be harmful to school achievement if work hours are extremely long (National Commission on Children, 1991).

Ethnic minority status

Minority adolescents have higher dropout rates (Ekstrom et al., 1986). African Americans and Hispanics have lower grades than Whites (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987), but much of the effect may be due to the influence of socioeconomic status. Minority students are more likely to live in poor families or in single-parent families. Their parents have less education on average, and they usually attend lower quality schools. All of these factors put them at risk for school failure (National Commission on Children, 1991). They also may face discrimination and prejudice at school, and the value systems of school may conflict with family and ethnic values (Center for the Study of Social Policy, 1986; Fordham, 1988; Fordham & Ogbu, 1986; National Commission on Children, 1991).

Family structure affects absences and behavior problems in school.

Research on minority students whose first language is not English shows that they are not below average in cognitive ability. They may be underachieving in school because they are hesitant to speak up in the classroom and participate in discussions (Feldman, Stone, & Renderer, 1990), or because of parent and teacher attitudes (Steinberg et al., 1984).

Single-parent and stepparent families

Family structure affects absences and behavior problems in school (Dornbusch et al., 1985). Students who experience family disruption or live in single-parent families are more apt to be placed in a special education class (Lambert, 1988). Adolescents in single-parent and stepfamily households have lower grades than those in two-parent households (Dornbusch et al., 1987).

Single-parent families on average are more likely to be low-income families (McLanahan, 1985; Milne, Myers, Rosenthal, & Ginsburg, 1986). The stress of family breakup may place students at risk (McLanahan, 1985). The absence of a father has been linked to less parental supervision, another possible link to lower achievement. If the father is not present, the mother is more likely to be employed and less available to supervise (National Commission on Children, 1991).

Maternal employment

A number of studies suggest that when mothers are employed full-time, some children—of all ages from preschool through high school—do not do as well in school (Baydar & Brooks-Gunn, 1991; Bogenschneider & Steinberg, 1994; Bronfenbrenner & Crouter, 1982; Gold & Andres, 1978; Hoffman, 1979; Milne et al., 1986).

Low parental aspirations and expectations

When parents set high standards, children work harder and their school achievement is higher (Natriello & McDill, 1986). High school dropouts report their mothers have lower expectations for them (Ekstrom et al., 1986). Furthermore, high school dropouts are likely to have a family history of dropping out (Mahan & Johnson, 1983), suggesting again the influence of family norms or expectations. When parents express high expectations about continuing schooling past high school, children are more likely to go on for further education after graduation (Conklin & Dailey, 1981).

High aspirations may be especially important for adolescents from low socioeconomic backgrounds. Parents who have high aspirations may provide a strong influence that enables children to overcome other disadvantages (Davies & Kandel, 1981).

Permissive or strict parenting style

The negative effects of low socioeconomic status or a single-parent family on school achievement are due, in large part, to characteristics of parent-child relationships in such families. Parental discipline, control, monitoring, concern, encouragement, and consistency are all aspects of the parent-child relationship that have been linked to academic achievement in adolescence.

The authoritative parenting style, characterized by warmth, interest, and concern, along with clear rules and limits, has a positive effect on grades. Parenting that is too permissive or too strict has a negative effect on grades (Dornbusch et al., 1987).

Single mothers score higher on permissive parenting than those in two-parent families. Stepparents are more likely to be permissive or very strict than parents in two-parent families (Dornbusch et al., 1987).

Poor parental monitoring

High school dropouts report less parental monitoring of their activities and less communication with parents (Ekstrom et al., 1986).

Low parental involvement with school

When parents attend parent-teacher conferences, help with home-work, and watch their children in sports or other activities, their children do better in school. (Bogenschneider, 1997; Henderson, this volume). When parents are not involved, their children receive lower grades, are more likely to drop out, and have poorer homework habits (Baker & Stevenson, 1986, Epstein, 1982). Parental involvement is a potent predictor of school success, regardless of ethnicity, parent education, family structure, or gender (Bogenschneider, 1997).

Parenting that is too permissive or too strict has a negative effect on grades.

Parents of dropouts may express their opposition to dropping out but not take any specific action to help their adolescent stay in school (Mahan & Johnson, 1983). Parental interest may be shown by the presence of study aids such as encyclopedias and dictionaries in the home (Ekstrom et al., 1986).

Peer factors

Lack of friends

Adolescents who are popular as children are more likely to finish high school and more likely to go to college (Lambert, 1988). Dropouts rate themselves as less popular (Ekstrom et al., 1986).

Friends with school problems

The friends of high school dropouts have more absences, lower grades, and less positive attitudes toward school. They are less popular and less likely to plan to attend college (Ekstrom et al., 1986). If dropouts maintain contact with friends who have stayed in school, however, these friends may provide moral support for returning to school (Mahan & Johnson, 1983).

Friends with negative attitudes

Attitudes and aspirations of peers (Marjoribanks, 1985) and peers' expectations and standards (Natriello & McDill, 1986) affect individual effort and achievement in school. Although peer influence is an important factor in some aspects of achievement, parents' influence is more important for others (Davies & Kandel, 1981). For example, parents have more influence than peers on plans for future schooling, but peers are more influential when it comes to attitudes toward school and time spent on homework (Steinberg & Brown, 1989).

School factors

Ineffective teachers

Effective teachers like their students (Edmonds, as cited in Good & Weinstein, 1986; Center for the Study of Social Policy, 1986), are highly involved with students (National Commission on Children, 1991), encourage participatory learning (Edmonds, as cited in Good & Weinstein, 1986), and have high expectations for their students (Center for the Study of Social Policy, 1986; Edmonds, as cited in Good & Weinstein, 1986; Linney & Seidman, 1989; National Commission on Children, 1991). More experience and training does not, in itself, assure effective teaching, but opportunities for staff to periodically upgrade their training appear to be critical (Boyer, 1983; Spady, 1976). Elsewhere in this report, Spillane argues that state policy initiatives, such as holding schools accountable for student performance on state tests, were effective in getting teachers' attention. Yet policy alone failed to change the core of teaching practice. The most effective way to do this is to encourage teachers to learn about the reforms and to share ideas and teaching strategies both with each other and with experts.

Peers are more influential than parents when it comes to attitudes toward school and time spent on homework.

Inflexible curriculum

Instruction that is flexible enough to suit a variety of learning styles may prevent discouragement and dropping out (Gadwa & Griggs, 1985). The curriculum

should also take into account the values and experiences of students from a variety of ethnic and social class backgrounds to prevent student alienation (Center for the Study of Social Policy, 1986; Massachusetts Advocacy Center, 1988). If the school provides an opportunity for participation in decision making, students are more satisfied with school and have higher grades (Epstein, 1983).

Lack of counseling services for at-risk students

At-risk students require extra attention, especially at stressful times, from teachers or counselors (Carnegie Council on Adolescent Development, 1989). When students are close to dropping out of school, counselor availability and information about alternatives can make a difference (Mahan & Johnson, 1983). The high dropout rates of language minority students may be due to the lack of attention from teachers (Steinberg et al., 1984).

School transitions

Changing schools is stressful and may cause either temporary or long-term problems with academic performance. When students enter a middle school or junior high school, they are at risk of lower grades and declining participation in school activities (Simmons, Burgeson, Carlton-Ford, & Blyth, 1987). The more complex structure of the high school may cause adjustment problems, leading to academic problems (Carnegie Council on Adolescent Development, 1989; Mahan & Johnson, 1983).

One experimental program, offered during the transition into high school, provided extra peer and teacher support. When participants were compared with a control group, they showed fewer absences, higher grades, less decline in self-concept, and a more positive attitude toward school (Felner, Ginter, & Primavera, 1982).

Students who move and change schools more frequently are more likely to drop out of high school (Lambert, 1988; Mahan & Johnson, 1983) and less likely to attend college (Lambert, 1988).

A good principal should be supportive of teachers and willing to involve teachers in decisions and planning.

Weak administrative support

A principal who displays strong leadership and is involved in instruction is important to school effectiveness (Boyer, 1983; Edmonds, as cited in Good & Weinstein, 1986; National Commission on Children, 1991). A good principal should be supportive of teachers (Boyer, 1983) and should be willing to involve teachers in decisions and planning (Massachusetts Advocacy Center, 1988). The principal should have enough autonomy from the school district to exercise authority (Boyer, 1983).

Size of the school district

Small rural districts and large urban districts have higher dropout rates (Gadwa & Griggs, 1985). A recent study of Wisconsin dropouts reported higher dropout rates in larger school districts. The study identified school district size as the most significant predictor of dropout rates (Center for the Study of Social Policy, 1986).

Size of the school

Large schools have the advantage of more resources, but they have the disadvantages of being impersonal and having more disorder or crime. Smaller schools are considered better, especially for at-risk students (Boyer, 1983). In large schools, a smaller subunit, or school-within-a-school program, is recommended (Carnegie Council on Adolescent Development, 1989; Dorman, 1987).

Low participation in extracurricular activities

Smaller schools are considered better, especially for at-risk students.

High school dropouts report lower levels of participation in extracurricular activities (Ekstrom et al., 1986). In small schools, participation is more active, and there is more pressure on individual students to participate. Students in these schools benefit from the challenges and developmental opportunities of activities. In large schools, fewer students participate in activities and students who feel alienated from the school are especially likely to be left out of extracurricular activities (Barker & Gump, 1964).

Negative school climate

The lack of an orderly classroom environment (Edmonds, as cited in Good & Weinstein, 1986; Linney & Seidman, 1989; National Commission on Children, 1991) and a lack of a sense of safety (Edmonds, as cited in Good & Weinstein, 1986) are major ingredients in a negative school climate.

Uninvolved parents

Parent participation in the school—ranging from classroom visits to tutoring, textbook evaluations, and staff evaluations (Irvine, 1988)—result in better school-family relations. Improved communication between the school and the family keeps parents informed and provides information on how to help their children succeed (Massachusetts Advocacy Center, 1988). The result is improved student achievement and attitudes toward school (Carnegie Council on Adolescent Development, 1989).

Work factors

Early involvement in work

Students who work may drop out or have lower aspirations for postsecondary education (Ekstrom et al., 1986; Steinberg, 1989). Ekstrom and her colleagues (1986) found that 27% of male dropouts cited employment as the reason they left school, and 14% cited family support obligations.

Long work hours

Part-time work has some developmental benefits for adolescents, but employment may present problems for high school students who work excessively long hours. Working long hours may lead to more school absences, less time spent on homework, choosing easier classes, cheating on tests, and lower teacher expectations (Steinberg, 1989; Steinberg, Brown, Cazmarek, Cider, & Lazarro, n.d.).

Community factors

Low socioeconomic level

Adolescents in communities with high rates of welfare and unemployment are less interested in school (Nettles, 1990). However, the negative effects of living in a low-income community may be offset by parenting style and social relationships with persons outside the community— family and friends, church, and other organizations (Steinberg, 1988).

Studies comparing the relative influence of the family and the community have been inconclusive. Some assert that community effects may be explained by individual family factors. On the other hand, Dornbusch and Ritter (1991) suggest that the average parenting style in a community may outweigh the style of individual parents in influencing their adolescents' grades.

Lack of community resources

The amount of money spent on education by local government appears to be related to effectiveness of education, but the relationship is unclear (National Commission on Children, 1991; Spady, 1976). School districts with more funding have lower dropout rates (Center for the Study of Social Policy, 1986). Inadequate funding may impair recruitment of high quality teachers and maintenance of textbooks and other curriculum materials (National Commission on Children, 1991). Studies in this area have been flawed in not considering the possibility that higher ability students might be drawn disproportionately to high quality school districts.

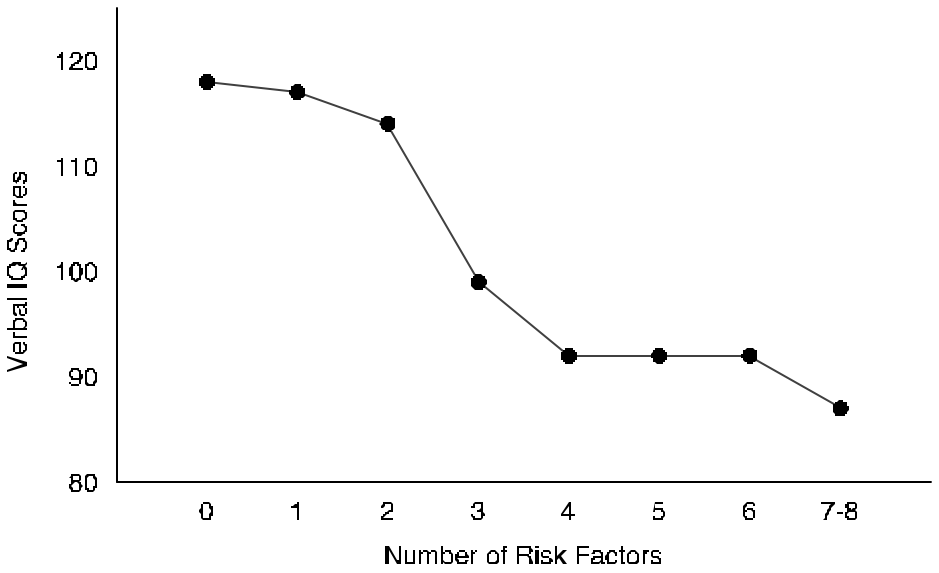
Two factors that contribute to the funding ability of a community are the school aid formula (see Reschovsky, this volume) and the presence of industry. Industry creates a strong tax base (Spady, 1976) and brings resources such as money, equipment, and expertise to a community (Irvine, 1988). In Milwaukee, when local businesses donated money for computers, mean reading scores improved by three grade levels and mean math scores improved by almost four grade levels (Mann, 1986). In Atlanta, volunteers from the business community served as mentors in a successful program to promote academic success (Mann, 1986).

Working long hours may lead to more school absences, less time spent on homework, choosing easier classes, cheating on tests, and lower teacher expectations.

Cumulative risk

One study of 215 children examined how risks affected verbal IQ scores in 4-year-olds. The study included risks such as the mental health of the mother, mother's anxiety, mother's education, minority group status, and stressful life events (Sameroff, Seifer, Barcocas, Zax, & Greenspan, 1987). The study found that the presence of a single risk had little effect on IQ. However, the more risk factors, the more likely IQ was jeopardized. High-risk children were more than 24 times as likely as children with fewer risks to have IQs below 85.

Does the Number of Risks Affect Children's Verbal IQ Scores?



Note: From "Intelligence Quotient Scores of 4-Year-Old Children: Social-Environmental Risk Factors," by A. J. Sameroff, R. Seifer, R. Barocas, M. Zax, & S. Greenspan, 1987, *Pediatrics, 79,* pp. 343–349.

Implications for policymakers

According to this risk-focused ecological approach, educational performance has not one cause, but many. To improve educational performance, we need a comprehensive, multidimensional approach. We need to address individual academic and social skills, family dynamics, peer influence, school performance, and community support. All too often we look for a single factor and a "magic bullet." However, simple solutions to complex problems are likely to result in piecemeal, Band-Aid policies. Educational performance is much too complex and the solutions much too comprehensive to respond to any single policy or program.

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Cost-Based School Finance Formulas: Assuring an Adequate Education for All Students

Andrew Reschovsky

In our increasingly complex world, the receipt of a high-quality education is the key to both economic success and to intelligent participation in our political system. Although most children in Wisconsin receive a high-quality education, there is ample evidence that the system of public education fails to provide all children in the state with an adequate education.

Educational adequacy is defined in terms of a minimum acceptable level of educational outcomes. For example, state policymakers may decide that children are adequately educated if they achieve certain levels of proficiency in reading and writing, and acquire certain specified knowledge of mathematics, science, and history.

In Wisconsin, the primary focus of the school finance system has been on achieving *equity* rather than educational adequacy. The goal of the state's equalization aid formula is to reduce the linkage between a school district's per pupil property tax base and its expenditures per pupil. The existing aid formula has in fact been quite successful in guaranteeing that all school districts that choose the same property tax rate will have approximately the same amount of money available to spend on education.

Although the achievement of equity is an important goal, equity as it is commonly defined ignores completely school outputs, or more specifically, student performance. This is because equal spending per pupil does not necessarily guarantee equal student performance. Thus, even if Wisconsin achieves a high degree of equity in school finance, there is no reason to believe that it will have provided an *adequate* education for all its students.

One of the primary reasons why equal spending doesn't necessarily result in equal educational outcomes is that the *costs* of providing any given level of education may well differ among school districts.

When I use the word *costs,* I mean something quite different from the general use of the term in discussions of educational finance. In Wisconsin, when we talk about the cost of education, as in "shared cost" in the aid formula, we really mean the amount of *spending* on education.

When business people and economists talk about costs, they are generally referring to the *value of the resources* necessary to produce a given amount of a particular good or service. Thus, when we talk about the cost of producing a hundred-weight of milk, we realize that costs may differ both over time and among farmers for reasons that are largely outside the control of individual farmers. For example, a rise in the price of feed grains will increase costs, as can the severity of the weather.

What does the cost of milk have to do with education? Whereas milk production is easily measured, education is a complex process that is hard to assess and measure. Nevertheless, there should be little question that school finance is a means to an end, and the end is a system of public education that produces well-educated children. Some school districts clearly provide more and higher quality education than other districts.

Here the milk analogy is useful. The cost of education refers to the amount of money a school district must spend to achieve any particular educational outcome—providing all children with an equal opportunity to read at the fourth-grade level by the end of the fourth grade, for example. Some school districts, due to factors over which they have no control, must spend more money than other school districts to achieve this, or any other, educational goal.

Costs differ across school districts for reasons outside the control of local school boards. For example:

- Children who are disabled, have limited knowledge of English, or come from single-parent, low-income families need special attention (i.e., lower class sizes) and specialized programs to bring their educational performance up to a level equal to that of other children. Thus, districts with heavy concentrations of these students will have higher costs than other districts.
- School districts in high-cost-of-living areas will have to pay higher salaries to attract good teachers than will school districts in parts of the state with a relatively low cost-of-living.
- Because they are unable to take advantages of economies of scale, very small, generally rural school districts will have to spend more per pupil to achieve any given level of student achievement than school districts with larger enrollments.

For these reasons and perhaps others, the costs of providing any given level of education vary across school districts, just as the cost of producing milk may vary among farmers.

Some school districts, due to factors over which they have no control, must spend more money than other school districts to achieve educational goals.

Districts with below-average costs will be able to provide more education—for example, a more diverse set of courses or larger improvements in reading and mathematics—for each dollar spent than districts with higher costs.

To help clarify the role played by cost differences, let us compare two hypothetical school districts, Alphaville and Betaburg. Both districts have the same number of students, spend the same amount per pupil, and have the same property wealth. Assume, however, that 25% of the public school students in Alphaville live in families with income below the poverty line, whereas only 5% of students in Betaburg come from poor families. Furthermore, assume that the cost of living in Alphaville is 15% above the state average, whereas the cost of living in Betaburg is 10% below the state average.

It is reasonable to conclude that it will cost more money to achieve any given level of educational outcome in Alphaville than in Betaburg. Teachers will have to be paid more to live in high-cost-of-living Alphaville, and Alphaville will have to devote more teaching resources than Betaburg to meet the needs of the large number of poor children.

In my view, the most serious problem with Wisconsin's equalization aid formula is that it takes no account of the cost differences among school districts, where costs are due to factors outside the control of local school boards. It is important to note that districts with high levels of spending per pupil do not necessarily have high costs. In some districts, high spending may reflect the desire of local taxpayers to provide a very high quality education. Conversely, low spending doesn't mean that costs are low. A low-spending district may have decided to accept low-quality education for its students.

The most serious problem with Wisconsin's equalization aid formula is that it takes no account of the cost differences among school districts.

Until now, my discussion of costs has been abstract. From a policy perspective, the important question is what factors lead to cost differences among school districts in Wisconsin, and how important, in quantitative terms, are these cost differences? I have recently completed a statistical study (funded by the Office of Educational Research and Improvement of the U.S. Department of Education) in which I set out to answer these questions. My approach was to use detailed student information, test score data, and financial statistics from all 368 of Wisconsin's K–12 school districts to estimate a *cost function* for public education in Wisconsin. A cost function allows one to statistically identify the characteristics of school districts and their student bodies that contribute to the costs of providing any given educational outcomes.

To determine the educational outcomes in each district, I used two measures. First, as a *value-added* measure of improvements in student achievement, I calculated the difference in scores from the Knowledge and Concepts Exam taken by eighth graders in 1993–94 and scores from the tenth-grade exam taken by the same students 2 years later. Second, as an indicator of the richness of each district's course offerings, I counted the number of advanced courses.

The results of my statistical analysis indicated that costs are higher in districts in high-cost-of-living regions of the state that must pay higher salaries to attract teachers. Costs are also higher in districts with heavy concentrations of students from poor families and in districts with large numbers of students with disabilities, especially when the disabilities are severe. Finally, costs are relatively high in districts that are either small or large. Average costs are lowest in districts with about 5,700 students.

The cost functions allow us to quantify the importance of various factors in determining the costs of achieving specified levels of educational output. To summarize all the information contained in a cost function and to use this information in a school aid formula, we need to calculate a *cost index*. A cost index allows us to isolate the variation in school spending attributable to cost factors that are out-

side the control of local districts (such as the proportion of the student body from poor families), while holding constant things that are under the control of local school boards.

The results of my analysis show clearly that costs vary tremendously across school districts in Wisconsin. The district with the lowest costs could achieve an average level of achievement by spending about 40% less per pupil than the district with average costs. With the exception of two districts, the district with the highest costs must spend about 90% more than the average cost district to achieve an equal educational outcome for its students.

If the goal of state policymakers is to achieve educational adequacy, the state should turn to a cost-adjusted foundation formula.

As an example, Madison's cost index is 1.27—this means that Madison will have to spend 27% more than the district with average costs to provide an adequate education as measured by performance on test scores. Madison's higher costs are primarily attributable to the fact that the cost of living in the Madison area is relatively high and the proportion of students from low-income families is considerably above the state average. In contrast, the cost index for Stevens Point is 0.89, meaning that costs there are 11% below average. Stevens Point's relatively low costs are due to the fact that the city is located in a portion of the state with a modest cost of living and the city has a below-average proportion of children who are disabled or come from poor families.

The existing system of school finance in Wisconsin largely ignores cost differences between districts. Although the state government provides nearly $400 million in categorical aid, primarily for students with men-tal, physical, or emotional disabilities, this amount is probably insufficient to cover the full cost of educating these students. In addition, categorical aid provides almost no money to reflect the higher costs of educating students from economically disadvantaged families. The revenue caps in place in Wisconsin further penalize districts with above-average costs. Because annual revenue increases are limited to $206 per pupil in most districts, this dollar amount will provide fewer resources and will finance less education in districts with above-average costs as compared with districts with below-average costs.

How could Wisconsin reform its school finance system so as to account for cost differences? If the goal of the finance system is to achieve fiscal equity by guaranteeing that districts with equal school tax rates can provide equal education regardless of per pupil property wealth and regardless of cost differences, the state should reform the existing equalization aid formula by adjusting "shared costs" for real cost differences among districts.

If the goal of state policymakers is to achieve educational adequacy, the state should turn to another type of formula—a *cost-adjusted foundation formula*. Under a foundation formula, the state defines what it considers to be an adequate level of education. The dollar value of the average *foundation level* would then be set equal to the amount of spending necessary to achieve state-determined adequacy in districts with average costs. Each district would have its own foundation level of spending, depending on whether it had above or below average costs

(as determined by the value of its cost index). Thus, the foundation levels in districts where costs were 10% above average would be 10% above the foundation level in the district with average costs. Districts with below-average costs would have below-average foundation levels.

The state would also determine a property tax rate that all districts would be required to levy. For each district, state foundation aid would then be the difference between that district's foundation level and the amount of property tax revenue the school district could raise using the state-imposed rate. Thus, under this type of formula, the largest per pupil grants would go to districts with the smallest per pupil property tax bases and districts with the highest costs of providing an adequate level of education.

The acceptance of the goal of educational adequacy and the implementation of a cost-adjusted foundation formula does not necessarily require the state to increase its expenditures on K–12 education. The total expenditures necessary to achieve adequacy depend on how state officials choose to define adequacy. My UW colleague Professor Allan Odden has argued that it is likely that Wisconsin could provide all its students with an adequate education without spending substantial additional amounts of money. My own research supports this conclusion. If the state chose to define the standard of adequacy as the average level of current student performance on the tenth-grade achievement test, and if the state reallocated the money it now spends on equalization and categorical aid using a cost-adjusted foundation formula, that amount of money should be sufficient to achieve adequacy for all students.

Wisconsin could likely provide all its students with an adequate education without spending substantial additional amounts of money.

What if a district wants to spend more than its foundation level? One possibility is to let districts remain free to supplement spending above the cost-adjusted foundation, but to provide no additional aid. The fiscal discipline of having to pay for the last dollar of spending should discourage extra spending. On the other hand, it would be possible to provide more state aid on a matching basis for spending in excess of the foundation level, with such aid targeted to low-property-value, high-cost districts.

I would like to conclude by emphasizing that providing school districts with enough resources to achieve educational adequacy does not in itself guarantee that students will be provided with an adequate education. Additional financial resources must be accompanied with strict accountability standards. Wisconsin will need to develop financial incentives and/or penalties plus other administrative mechanisms to assure that local school districts actually improve educational outcomes and meet their goals of educational adequacy.

Urgent Message: Families Crucial to School Reform

Anne Henderson

The vision of higher standards to be achieved by every student is the most ambitious challenge American public education has ever faced. For the first time in our history, the nation has adopted policies that promise all students—rich and poor, no matter where they live, the language of their family, or how long it takes them to learn—a quality education.

We know how to create a quality educational environment for all children, teachers, and parents. Participants at a 1997 national conference on advancing family and parental involvement in school reform agreed the following are required:

- Families, schools, and communities working together for children.
- Accountability measures that hold everyone responsible for improving student achievement.
- Strategies that increase the capacities of educators, families, and students to teach and learn to high standards.

In schools that try to embody these characteristics, neither the schools nor parents working alone can help children make noticeable progress. Quality education for all comes about through informed, focused, and collaborative efforts by educators, students, and parents who hold high expectations for themselves.

Unfortunately, such schools exist in only a few places. As a result, parents who can afford to are seriously considering opting out of traditional public schools because they can't sacrifice their children to such slow change. About 44% of parents responding to the 1997 Phi Delta Kappa/Gallup Poll approved of letting parents choose a private school at public expense. Three years earlier, only 24% approved of the idea.

Even the most ardent believers in raising standards for schools and students worry about how long it is taking to move to a public school system committed to the success of every child. The slow pace of change allows critics of public education to press for more radical changes that could undermine support of public education even further.

The greatest failures of all

The children of the poor are most affected by the failure of reforms to generate the improvement they promised. According to the Education Trust (1996), high-poverty schools have more unqualified teachers, offer fewer college prep courses, lack instructional resources, and have lower achievement scores. When

students, no matter their color or family income level, have access to rigorous math and science courses, they score higher on such tests as the SAT and ACT.

Reports show a consistent gap between the performance of White students and that of African American and Hispanic students. However, they do not report in detail on the differences in opportunities that students in low-resource schools experience every day. The impression left is that poor children just can't do the work. In truth, the opportunities to do the work generally are not available.

A fundamental flaw of the reform movement is that parents are not included in meaningful ways.

Early interventions with failing students are critical, but our concerns are much broader and deeper. Assuring academic success begins with restructuring the basic experiences of students in classrooms. Reducing the failure of reform efforts to lack of money or improper teacher assignments diverts attention from the overall need to change the learning environment significantly.

The serious neglect of parents in reform efforts

A fundamental flaw of the reform movement is that parents are not included in meaningful ways.

In some communities, a few parents serve on the task forces and committees organized to plan changes. In some places they are at the table when important decisions about staffing and resources are made. They may be invited to come to schools to hear about what standards mean or learn about new kinds of assessments.

Yet, in most communities parents generally are neither involved nor well informed. Because they are not included in significant planning, parents are left to concern themselves with peripheral issues such as worrying about the use of calculators or the time spent in noisy group work. Without chances to engage in more thoughtful conversations, parents have limited knowledge about standards, for example, or how critical thinking helps students learn basic skills. As a result, many parents are unsure of, even alienated from, what is happening under the label of school reform.

Despite national and state flurries of attention to greater parent involvement as part of the reform movement, families are most often considered adjuncts to the intellectual work of the school. Parents need to listen, school people seem to say, rather than be listened to. Schools are more interested in teaching parenting skills than in learning the insights parents have about their children.

A recent Public Agenda (1993) survey found

- 60% of Americans believed parents and the community should have more say in basic decisions within schools,
- only 25% of teachers approved of greater parental inclusion in decisions, and
- less than 15% of administrators thought it was a good idea.

However, studies show that parental involvement is crucial to the success of reforms. That is why the typical kinds of parent involvement need restructuring, too, so that when schools and parents do have opportunities to come together, the conversations and decisions will be meaningful and important. They should be talking about visions and school improvement as well as about PTA dues and field trips.

The parent factor in student achievement

It is common sense that parents' interest in and support of their children's learning at home results in higher achievement at school. The research shows when parents have many different kinds of opportunities to be involved in the school, their children go further in school and the schools they attend get better results.

In a review of the research, Henderson and Berla (1994) found that the children who are furthest behind make the greatest gains in achievement when their parents are part of school life. When parents understand the purposes and expected outcomes of standards-based reforms, they will be even more able to support at home what teachers and administrators are committed to at school.

Henderson and Berla (1994) found these benefits for students when schools support families' engagement in their children's learning at home and at school:

- Higher grades and test scores.
- Better attendance and more homework done.
- Fewer placements in special education.
- More positive attitudes and behavior.
- Higher graduation rates.
- Greater enrollment in postsecondary education.

The benefits extend to families, too. Parents develop more confidence in the school. The teachers of their children have higher opinions of them as parents and higher expectations of their children. As a result, parents develop more confidence, not only in helping their children learn, but also in themselves as parents. Often, the involvement encourages parents to seek more education.

The children who are furthest behind make the greatest gains in achievement when their parents are part of school life.

There are three primary ways parents contribute to moving schools toward quality standards and higher student achievement. These are pushing the system, helping design local school improvement, and taking part in the parent involvement opportunities created by the reforms.

Pushing the system

Parents need to press for higher standards and a fair, effective system of accountability. They must insist on high-quality public schools and press their local school to adopt school reform. If traditional schools are failing, they should create

alternative public schools. Where parents push the system, improvements result.

- In Kentucky, 20,000 parents gathered at local meetings to create a vision that resulted in the Kentucky Education Reform Act, one of the most comprehensive in the country.
- In an El Paso elementary school, where 90% of the students come from homes where Spanish is spoken, a community organization set up accountability sessions at the school. After 2 years, 70% of students now pass the state reading test.
- At the almost all African American Slowe School in Washington, D.C., parents now sit on all school improvement committees, and student test scores are 20 to 30 points above the national averages on standardized tests.
- In Brooklyn, activist parents chose a new principal who supported creating alternatives to the large, institutional schools where their children were not doing well academically. The school now is a campus of four small alternative schools, each run by a teacher-director and a steering committee of parents and teachers. Student test scores have climbed steadily.

Parents should monitor reform results and ask the hard questions.

Helping design local school improvement

Parents should participate in school improvement committees to design and implement reforms. They should monitor results and ask the hard questions. They should check student work to make sure it reflects high standards and high performance. They should insist on report cards designed so parents can see how their students are progressing. This kind of involvement shows results:

- In Louisville, parents and teachers revamped the school's Title I program, bringing in Reading Recovery to the primary grades and insisting that all children learn to read by the end of third grade. Test scores are up 50% in 4 years.
- Norwood Park School in Chicago identified a 57% mobility rate as a barrier and held community discussions to find ways to keep families in the school. In response, the school added an all-day kindergarten program and built strong relationships with families. Mobility went down to 8% in 3 years. Achievement scores are up almost 50%.
- At Ysleta Elementary School in El Paso, the school standards team of teachers, the principal, support staff, and parents wrote scoring guides so that students, teachers, and parents alike could recognize high- and low-quality student work. Students use the scoring guides to rate their work and explain it to each other and to their parents.

- In a Kentucky school, parents worked with teachers to design a new report card that lists the state's learning goals for each subject so parents can understand their children's scores.

Taking part in the parent involvement opportunities created by the reforms

Parents should participate in school governance councils that set policy, develop new programs, and decide how to address low student achievement. They should encourage other parents to become actively engaged in the school. They can help obtain resources to improve the school. And they should attend staff development sessions. These actions produce results:

- At a Los Angeles school, members of the school governance council, half of whom are parents, created a 200-day, year-round academic program and reduced class size to 20 students for each teacher in grades 1–3. The council also designed a family center, a one-stop shop for social services, and a career ladder program for parents.
- In a Boston elementary school, more than 25% of children have significant disabilities requiring supplemental and supportive services. Parents created a family center and a parent outreach program. They offer workshops about standards-based education and how children's programs can be modified to enable them to meet the expected standards. They also offer language instruction, organize ways for parents to help out in classrooms, and provide opportunities for networking.
- At a high school in rural Tennessee, parents rallied to save their school after the county decided not to renovate the 50-year-old building. The school is now an agricultural service center where students offer services such as equipment repair and cattle weighing. Local family farming businesses provide opportunities for students to learn math, science, social studies, and writing skills.
- In New York City, many new, small schools have been organized around the city and offer help to other parents, teachers, and students interested in forming smaller schools.
- In Texas, more than 600 teachers and parents have attended conferences on school reforms.

For school reforms to bring about success for all students, efforts such as those described above must multiply by the thousands. Whenever reform efforts reached a peak in the past, researcher Richard Elmore points out, those committed to change usually were gathered up and concentrated in one place. The isolation of these reforms meant that their innovation withered away. As some of the examples cited above demonstrate, parents often need outside help to organize their attempts to get reforms that have staying power and significantly change the learning environment for their children.

We do not underestimate the challenge of building respect between educators and parents so they can work together on needed reforms. However, we are concerned that time is short. We must demonstrate that higher standards and other reforms can take hold in public education programs serving all children, including those from low-income families and those with significant disabilities. Critics of public education have launched well-funded efforts to turn parents' disillusionment with schools into a reason for abandoning public education altogether. Policymakers and taxpayers who see little progress may withdraw their support for public education.

Policymakers and taxpayers who see little progress may withdraw their support for public education.

The public school reform movement cannot go much further without the kind of parent involvement and support called for in this report. Our message about transforming public schools is urgent. It must be done, done right, and done quickly.

What ALL Parents Should Know and Be Able to Do About School Reform

- Participate in creating a vision for the school that sets high expectations for all.
- Take part in developing a system to report on student progress and participate in holding the schools accountable for the results.
- Be involved in monitoring and analyzing data on student achievement.
- Be involved in decisions that affect their children's opportunities to learn, such as how resources are used, what the learning objectives are, and what instructional strategies ought to be used to accommodate individual differences.
- Know what needs to change in teaching and learning to ensure their children learn well.
- Know what their children should be learning and know it well enough to ask good questions.
- Accept responsibility for providing support at home that will help their children learn to high expectations.
- Understand their children's rights to receive a high-quality education and their own rights to be involved—and be vigilant about exercising those rights.
- Know how to find and use outside help when their children are not receiving the kind of education that will enable them to meet high standards.

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Improving Teacher Practice: Can Policy and Peer Mentoring Help Teachers Do Better?

James P. Spillane

Policymakers and educators at all levels of the system are crucial to creating reforms in education, but teachers are the key agents when it comes to changing what happens in the classroom.

This paper examines teachers' efforts to change their teaching practices to comply with state and national instructional reform efforts. Specifically, it looks at incentives and opportunities for teachers to learn about practice and at teachers' capacity and will to reconstruct their mathematics practice.

In this paper, I compare teachers who changed the core of their teaching practice with those who did not. Based on this analysis, I develop the idea that teachers' "zones of enactment" play an important role in their implementation of reform. The zone of enactment is the "space" in which teachers apprehend reform and work out its implications for their practice. Some teachers have a very narrow zone of enactment limited to their own individual classrooms and their personal experience and training. Others have zones that include professional colleagues, experts, professional organizations, and others. I conclude that teachers with a broad zone of enactment are more effective in implementing real changes in teaching.

Study and research methodology

This paper is based on a 5-year study (1992–96) that examined the relationship between state and local policy and mathematics and science teaching in Michigan.

In our study, we surveyed all third- and fourth-grade teachers and all seventh- and eighth-grade mathematics and science teachers in nine Michigan school districts in the fall of 1995. Our overall response rate for the survey was 62%.

We observed and interviewed a subsample of 25 teachers who said they had changed their teaching practices to fit with the reformers' proposals.

The mathematics reform and patterns of practice

We found evidence of reformed practice—more emphasis on problem solving, efforts to tie mathematics to the real world, the use of manipulatives, and new textbooks—in all 25 classrooms. However, only 4 of the teachers had revised the core of their mathematics practice extensively.

By the core of instructional practice, I mean the emphasis placed on mathematical principles as distinct from mathematical procedures (Greeno, Riley, & Gelman, 1984; Lampert, 1986; Leinhardt, 1985). Procedural knowledge centers on computation and following predetermined steps to compute correct answers. Principled knowledge involves key mathematical ideas and concepts that can be used to construct procedures for solving mathematical problems. Procedural knowledge dominates the K–12 curriculum (see Romberg, 1983). Reformers want students to understand mathematical activity as something more than manipulating numbers to compute right answers (Ball 1993; Cobb, 1988; Lampert 1990, 1992; NCTM, 1989, 1991; Simon, 1986).

Here's an example of a problem that centers on principled knowledge:

> Jessie said that 3/4 and 5/6 are the same size because they both have one piece missing. Do you agree? Explain. Use pictures to make your argument clear.

The task embedded in this problem was designed to get students to think about a key idea about fractions—that fractions are always a reference to a whole or unit and this whole is critical when comparing fractions.

In contrast, this is a problem that emphasizes procedure:

> At Tuff's diner you get a free lunch after 8 lunches you buy. If you ate the lunch at Tuff's 45 times last year, how many of those lunches were free?

This problem is primarily about performing a long division operation. Both these problems were used in classrooms where teachers in the study said they were implementing mathematics reforms. Obviously, these two teachers had very different ideas about what reform meant.

Reformers want students to understand mathematical activity as something more than manipulating numbers to compute right answers.

In 4 classrooms, we observed tasks and student conversations that centered on principled mathematical knowledge. In these classrooms, teachers pressed students to develop conjectures, explain their reasoning, and justify their answers. In 10 classrooms, we observed more modest changes to the core of instructional practice. Although the tasks in these classrooms also centered on principled mathematical knowledge, there was opportunity to understand the underlying mathematical concepts and to experience what it means to do mathematics in school and in the real world. These teachers had made changes, but they were not as significant as changes made by the other 4 teachers.

In the remaining 11 classrooms, instruction remained firmly grounded in procedural knowledge and computational skills. Although we observed "new" tasks related to problem-solving and applying mathematics to real-world situations, these tasks did not engage students with big mathematical concepts. These tasks represented doing mathematics as computing right answers using predetermined formulas and procedures.

External influences and incentives

All 25 teachers had paid extraordinary attention to the mathematics reforms and reported that state policy, particularly the Michigan Educational Assessment Program (MEAP), influenced their efforts to revise their mathematics practice.

The attention teachers reported giving to state policy is not surprising considering that the state had made student performance standards a requirement for school accreditation. Schools that failed to have 65% of their students score in the "satisfactory" range on MEAP tests would not receive state accreditation.

All teachers expressed a willingness to reform their instruction in ways consistent with reform proposals.

In addition, nearly every teacher mentioned that other professional associations—formal, informal, or both—had a strong influence on their mathematics teaching.

None of them said anything to indicate they were ignoring or resisting mathematics reforms. All expressed a willingness to reform their instruction in ways they understood to be consistent with reform proposals.

The role of enactment zones

How can we account for the fact that only 4 of the 25 teachers actually made extensive changes?

One plausible explanation is that the four teachers who revised the core of their mathematics instruction were already teaching in ways that approximated the reforms.

The case of one of these four teachers, Ms. Yarrow, lends support to this explanation. Ms. Yarrow, as part of her undergraduate preparation in mathematics education, learned many ideas about mathematics instruction that were consistent with the reforms.

> At the university, we had a good math department and the professors there modeled how they wanted the math taught. So we were taught the math the way they wanted us to teach it.

Moreover, Ms. Yarrow was an active user of reform and a risk taker, constantly in search of ideas to improve her practice. She was willing to learn and claimed that change was not difficult for her. Her undergraduate education, coupled with her disposition to learn and take risks, meant that Ms. Yarrow did not have to unlearn a lot of what she understood about teaching to enact the reforms.

However, this explanation does not hold for the other three teachers who made significant changes. All three were veteran teachers with between 9 and 18 years in the classroom. They reported having taught mathematics in very traditional ways until 4 or 5 years earlier. None experienced the sort of mathematics teaching reformers advocated. They were not people who gravitated naturally toward instructional innovations. Two claimed they were not even especially interested in or knowledgeable about mathematics.

Teachers' zones of enactment

I contend that the explanation for the substantial differences in what was being taught in these 25 classrooms can be found in the teachers' zones of enactment.

Some teachers' enactment zones were very individualist and mostly private spaces—isolated classrooms. Others teachers had much broader enactment zones that included many formal and informal interactions with professional colleagues.

The case of the Riverville trio

These three teachers (referred to earlier in this paper) reported teaching in rather traditional ways for much of their careers. Two of them claimed they were not especially interested in or knowledgeable about mathematics. Yet, all had made extensive changes to the way they taught mathematics. And all of them had enactment zones that went beyond their individual classrooms.

Those teachers who made extensive changes participated in ongoing discussions about their efforts to enact reform in their classrooms.

First, their efforts to enact the mathematics reforms included ongoing deliberations with colleagues and experts from inside and outside the district. As one teacher remarked, "I think teachers are talking more to each other about curriculum than they used to."

Second, these three teachers participated in ongoing discussions and deliberations about the reform ideas and their efforts to enact these reforms in their classrooms. They read and discussed the NCTM standards. They viewed and discussed videotapes of attempts to enact the standards. They talked about their day-to-day attempts to enact the reform ideas in their classrooms. One teacher remarked:

> Well, we do a lot of talking together. There [are] three of us at fourth grade. And so you know, [we talk] when we have recess or we have lunch, or last year we had a math study group, too. We talk a lot about what is going on.

Another teacher said:

> So I think some of it is me watching other teachers. I've been to a couple of workshop situations and we sit around and watch a teacher teach a class so that we can see a different idea of what is going on and having conversations after either watching them on videotape or watching live sometimes . . . sitting down as a staff and talking about different ideas.

Third, these teachers created opportunities to use resources of local expert teachers, university academics, and curriculum developers and of materials consistent with the reform ideas. One teacher described how these materials facilitated their discussions about mathematics practice:

> We . . . lifted the [NCTM] standards, and tried to study the standards and go to presentations about them. We've looked at Marilyn Burns tapes, we've looked at Deborah Ball . . . and a couple of our people here

> have . . . taken course work about math, and so we try to share all that information.

Mathematics educators at a local university piloted a new middle school mathematics curriculum in the district. One teacher remarked:

> I think that we have gotten a lot of training because of the piloting that we are doing for the Connected Math Project and that is reinforced by the workshops that we attend and it's reinforced by the conversations that we have as a staff, as a district math team.

The Investigations Math curriculum, a curriculum that is consistent with the mathematics reforms, was purchased for all elementary grades. These materials helped teachers teach in ways advocated by reformers. More importantly, the materials guided their conversations about mathematics instruction and provided common points of reference.

According to these three teachers, study groups and coaching contributed to their efforts to revise their mathematics practice. All three teachers said they learned a great deal from their opportunities to talk with their colleagues and people outside the school district.

These formal and informal discussions also created a powerful incentive for teachers to revise their practice. Teachers developed a sense of obligation to improve practice in specific ways as a result of ongoing conversations with colleagues. In addition, their classrooms became less private. Peer pressure motivated teachers to reform their practice.

> Mandy . . . [was] just dragging us along. She dragged Kathy and got her involved, and Kathy dragged Charlene, and now we're all dragging others. I guess because, you know, it was a teacher-initiated kind of thing and teachers are willing to get busy and get involved in it.

Observing how students responded to the changes provided another incentive. Using new material and approaches with her students, one teacher noticed significant changes in students' learning. She claimed that her expectations for what her students were capable of doing mathematically changed.

> I think so because I see it with the kids. They just come up with things that, years ago, we probably wouldn't have thought they were capable of. They have a lot more mathematical sense than what we give them credit for.

Peer pressure motivated teachers to reform their practice.

One teacher said that because the reforms pressed her to listen more to her students' ideas, she became more aware of what she needed to learn about mathematics and mathematics instruction.

> I am a better listener. I listen to what the kids have to say. . . . one of the things that I have learned is that there is a lot that I don't know, a whole lot that I don't know. About mathematics . . . and maybe about the teaching too.

These three teachers' enactment zones extended well beyond their individual classrooms. They had replaced the norm of privacy that dominates most schools, with a norm of collaboration and deliberation about practice.

The case of Ms. Yarrow

Ms. Yarrow's case was different. As described earlier, she was a risk taker, well disposed to change. Her own education equipped her with the skill and knowledge to understand and to teach in ways advocated by reformers and to find and use a variety of resources to construct an enactment zone that extended beyond her classroom and local school district.

Although her school district paid attention to the mathematics reforms, its initiatives focused entirely on surface features of the reforms. Moreover, Ms. Yarrow reported a complete lack of support from colleagues for her ideas about mathematics instruction.

> People are resistant to change. They have been doing things that they have been doing for 15, 20, 30 years. And why change what they think in their head is right, "Why should I try and change that?" And so I get a lot of resistance and people saying, "No I don't want to do that." "You are just a rookie. How can you tell me what to do and to make these changes? They are not right. We tried these 15 years ago. They just renamed it and are calling it something else."

Ms. Yarrow's zone of enactment extended beyond her individual classroom and school district and was critical in helping her continue to improve her practice.

Moreover, she claimed that she met with silence when she talked with her colleagues about reforming mathematics instruction. Still, Ms. Yarrow practiced in ways that approximated the core ideas of the mathematics reforms. Ms. Yarrow looked for opportunities to learn outside her district. She tapped a variety of resources, especially professional conferences. She used these conversations to improve on her mathematics instruction.

> I am just getting a little better. I am honing it. Every year I add something else or I do something different or I do something better.

Ms. Yarrow's zone of enactment extended beyond her individual classroom and school district and was critical in helping her develop her understandings of mathematics instruction and continue to improve her practice.

Contrasting cases

As noted earlier, 11 teachers in our sample did not make significant changes, although they reported attending to state and local policy and to the professional experts for guidance about their mathematics instruction. Of these 11 teachers, 6 worked in districts that had undertaken extensive efforts to encourage teachers to change the core of their mathematics practice.

A significant difference between these 11 teachers and the other 4 teachers concerned their zones of enactment.

The zones of enactment described by these 11 teachers were individualistic. These teachers did attend conferences or workshops about teaching, including district-supported professional development workshops on topics such as manipulatives, problem solving, and cooperative learning. Three reported talking with colleagues to get ideas about reforming their teaching. However, these discussions were chiefly about gathering activities they could transplant into their classrooms. They referred to encounters that were brief, not ongoing. These 11 teachers had no opportunities to test out their understandings of key reform ideas (e.g., problem solving) and no reason to question their enactment of the mathematics reforms.

Discussion and conclusion

1. State policy initiatives (such as holding schools accountable for student performance on the state MEAP test) were effective in getting teachers' attention about reforming mathematics instruction. However, they did not get teachers' attention about the core reform *ideas,* ideas they needed to understand if they were to change the core of their teaching. Although teachers gravitated to reform themes such as problem solving, most enacted these ideas in ways that failed to change the core of their practice in any fundamental way. Without opportunities to consider alternative understandings of core reform ideas, it is difficult to see how they might be motivated to change how they taught. It is, after all, very difficult to desire to practice in a way one cannot imagine—or see the need for in the first place.

2. Teachers need help to understand the core reform ideas and to access a rich array of social networks beyond their local schools. The professional sector provided opportunities for teachers to develop their knowledge and skills about reforming their instruction. But, the professional development workshops that most teachers attended were insufficient on their own to support the sort of learning teachers need if they are to change their teaching practice.

3. For teachers who do not have the necessary individual capacity (knowledge and skills) to understand the core of the reforms, their success depends in great part on their opportunities to discuss their practice and reform ideas with fellow teachers and experts. Such conversations enabled teachers to get beyond the surface dimensions of reform and see the implications of the reforms for the core of their teaching. Moreover, these interactions created incentives for teachers to change because of a sense of obligation to colleagues.

4. External accountability and incentives are important. But their ability to contribute, in a meaningful way, to changing the core of practice depends in great part on teachers' enactment zones. What is striking about Riverville's initiatives is the manner in which district leaders managed to bring both political accountability (in the form of state accountability measures) and professional accountability (by changing relations and expectations among teachers) together in the cause of instructional reform.

The professional development workshops most teachers attended were insufficient to support the learning teachers need to change their practice.

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Family-School-Community Partnership resource packets and materials, produced by the Wisconsin Department of Public Instruction, are available from the DPI, Family-School-Community Partnership Team, P.O. Box 7841, Madison, WI 53707 (608-267-9278). Further information is available online at http://www.dpi.state.wi.us/dpe/dlcl/bbfcsp/index.html.

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