

Teaching is Not Medicine

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“The real difficulty in changing any enterprise lies not in developing new ideas, but in escaping from the old ones.”

J. M. Keynes

Introduction

The theme of this conference is how higher education can be a partner in K-12 school reform. The central thesis of my talk today is that an old idea stifles that collaboration, and hinders progress in improving teacher quality in U.S. public schools. The hindrance is simply stated: the way to fix the teacher quality problem is make teaching more like the medical profession.

As an illustration of the pervasiveness of the medical vision, I give examples from the writings of two speakers at this conference, both of whom have high visibility in education community and who come to the question of school reform from very different perspectives. Diane Ravitch enjoys wide scholarly recognition as a critic of schools of education and rise of progressive education theory (e.g., Ravitch, 1974, 1983, 1985, 2000). Several years ago Professor Ravitch wrote an article quite literally from her hospital bed asking why k-12 education could not be more like medicine.

I looked appreciatively at the medical doctors around my bed, grateful to be surrounded by men and women who have a common vocabulary, a common body of knowledge, a shared set of criteria, and clear standards for recognizing and treating illnesses...

The thought occurred to me that educators have something to learn from physicians.... In our society, we rightly insist upon valid medical research; after all, lives are at risk. Now that I am on the mend, I wonder: Why don't we insist with equal vehemence on well-tested, validated education research? Lives are at risk. (Ravitch, 1998)

Professor Wise, a speaker on this panel and president of an education school accrediting organization, the National Council for Accreditation of Teacher Education (NCATE), is even bolder in evoking the medical metaphor. As president of NCATE he has written widely promoting teacher licensing and accreditation of schools of education (e.g., Darling-Hammond, Wise, and Klein, 1995). Here is an excerpt from a recent interview:

Teaching today is where medicine was just about 100 years ago. Indeed, there was a revolution in both the practice of medicine and in medical education that occurred between 1890 and 1910. And I like to believe that we are in the middle of a comparable revolution in our field. It started around 1985 or '90. And we are sort of about 10 or 12 years into it. We probably have another 10 or 12 years before we fully consummate this. The key is that members of the profession themselves in the lead work to insist on high standards – high standards of preparation, high standards for licensing, high standards for certification. And you can see it well documented in history that when medicine was organized and when physicians became active at the state level and began to insist that doctors be graduates of nationally accredited medical schools, things began to change. (Edutopia on-line, 2001)

Major foundations such as the Carnegie Foundation for Teaching have poured millions of dollars into projects designed to “medicalize” teaching. A milestone was their influential 1986 report A Nation Prepared: Teachers for the 21st Century. In the preface to that report, the chairman of the commission wrote:

In 1910, educator Abraham Flexner transformed medical practice in the United States by insisting on rigorous professional preparation of physicians. Flexner’s work, supported by the Carnegie Foundation for the Advancement of Teaching, laid the groundwork for the development of a medical delivery system second to none in the world. That historic Carnegie contribution has paid incalculable benefits to America and its people. We are confident that improvements in the preparation of teachers and the conditions under which they labor will prove as significant to the country and its children. (Carnegie Forum on Education and the Economy, 1986, p. 7)

A spin-off from this report, and another Carnegie-funded project, is the Nation Board for Professional Teaching Standards (NBPTS). This private certifying body, the brainchild of former AFT president Albert Shanker, is explicitly modeled on the 24 medical specialty boards in medicine. The Carnegie Foundation report cited above served as the launch pad for the board and the foundation provided the startup funds. Roughly 20,000 teachers now hold NBPTS certification and states are spending hundreds of millions of dollars providing pay bonuses for board certified teachers.

The medical model surfaces again in a second Carnegie-funded commission that is currently quite active. The National Commission on Teaching and America's Future (NCTAF) is a self-appointed body that includes two governors along with a variety of elites from the k-12 education community. NCTAF has issued several influential reports that explicitly promote the medical model in teaching (National Commission on Teaching and America's Future, 1996, 1997). NCTAF has established "partnerships" with 22 states and several large school districts to help advance its policy agenda (<http://www.nctaf.org/home.php>).

I could go on at length giving examples of the influence of the medical professional model. However, suffice it to say that any outsider who begins reading the literature on teacher training and licensing emanating from education schools and from much of the "reform" community will immediately see its influence. The bottom line for me occurs whenever I give an economist's perspective on the costs and benefits of teacher licensing to an education school audience. Invariably I face the question: "would

you send your child to an unlicensed doctor?” to which I sometimes reply: “would you spend \$35,000 per year to have your children study with unlicensed college professors?”¹

The Analogy Is Wrong

No one disputes the fact that teachers need adequate content knowledge to teach the subjects they must teach. A fifth grade teacher who does not understand the concept of probability is not likely to do a very good job of teaching it to her students. However, the bone of contention is not teacher content knowledge, but pedagogical training.

Proponents of the medical model in education assert that there is an extensive “knowledge base” defining the right pedagogical practice for teachers in various fields, e.g., how fifth grade teachers should teach math to children of a certain type, how social studies teachers should teach history. They point to hundreds of studies published annually in education research journals, many of which are devoted to teacher education, and to the detailed standards of the various teacher professional associations such as the National Council of Teachers of English or the National Council of Teachers of Mathematics.² Surely this large literature defines appropriate pedagogical practice.

However, in assessing this purported “knowledge base” we must distinguish scientifically-based research from other writings. There is widespread consensus in the social science research community that scientific evaluation of social policy programs

¹ For example, a University of Missouri education school dean writes: “None of us would send our children to a surgeon who was educated in the shallow manner that many of our teachers are.” (Andrews, 2000)

² For example, a 1996 report of the National Commission on Teaching and America’s states: “Although hundreds of studies have shown that fully prepared teachers are more effective than those who are unqualified, the practice of hiring untrained teachers continues.” “Teachers who know how to do these things [pedagogy] make a substantial difference in what children learn. Furthermore, a large body of evidence shows that the preparation teachers receive influences their ability to teach in these ways.” (National Commission on Teaching and America’s Future, 1996, pp. 15, 27) It should be noted that proponents of the medical licensing model frequently obfuscate the issue of content knowledge versus pedagogical training. The NCTAF report cited above provides a good case in point. For a critique of the NCTAF reports see Ballou and Podgursky (1998a, b; 2000)

(including education) requires: a) randomized experimental study design, or b) non-experimental longitudinal data on participants. Unfortunately, little research on teacher training or licensing meets either standard and the research that does is tentative and inconclusive. In other words, there does not exist a scientifically-based research literature that tells us what type of pedagogical training, if any, a teacher should receive.

At best, there are a handful of studies of teacher certification that meet rigorous research standards. A recent published survey of the literature (Wayne and Youngs, 2003) found only two studies of teacher certification that were peer-reviewed, used longitudinal student-level achievement data, and controlled for student SES. The results of these studies (both by Goldhaber and Brewer and both using the National Longitudinal Educational Survey of 1988) had mixed results. They did find a small positive effect of math teacher certification on math achievement, but no statistically-significant effect of science teacher certification on science achievement. Recent surveys of the literature by Hanushek and Rivkin (2004) focusing on “high quality” studies that meet the standards described above find little evidence linking teacher credentials to student achievement. However, studies comparing the performance of fully licensed to unlicensed or less-than-fully licensed teachers still do not address the pedagogy versus content knowledge issue noted above. Unlicensed teachers often lack both content and pedagogy coursework.³

Even if a research base does not exist, proponents often argue that medical-style “professionalization” is a desirable end in itself. They appeal to a vision of professional self-regulation in education akin to that in medicine and some other professions. As I mentioned above, I am routinely often confronted with the question: “would you send

³ A good overview of the gaps in the research literature is Goldhaber (2003).

your children to an unlicensed doctor?” Although rarely stated explicitly, I believe the argument is as follows: “While it may be true that there exists no rigorous evidence for the reforms we have proposed (e.g., professional self-regulation, NBPTS teacher certification, mandatory private accreditation of teacher training institutions), they are broadly similar to what is found in medicine. Therefore if we implement such reforms, teacher quality and the quality of education will improve in the manner seen in medicine.”

There is a deep body of scientific research in medicine and commitment to scientific research methods pervades medical schools, the professional specialty associations, and the community of medical practitioners generally. The economic case for medical licensing rests on an information asymmetry between what these highly-trained medical practitioners know and what consumers know concerning the quality of the services they are buying. Because of the complexity of the knowledge base in medicine and the high cost of mistakes (malpractice), it is relatively easy to argue that some sort of government licensing is required to screen out incompetent practitioners and protect consumers.

Does this argument generalize to education? If we replicate the professional self-regulation found in medicine can we expect qualitatively similar outcomes in education? To be sure there is scientifically-based research on student learning. However, for the most part this research is being produced not in schools of education but by educational and cognitive psychologists in psychology departments.

Even at leading research universities, the majority of education school faculty do not produce research based on rigorous scientific methodology – certainly nothing akin to

what one finds in a medical school. Many education faculty approach research with methods more akin to those found in the humanities than to those in medicine or the sciences. Controlled experiments and randomized studies are rare. Use of large-scale longitudinal data on students is not widespread. However, what education school faculty at leading research universities do or do not do is largely irrelevant since they train relatively few of the nation's classroom teachers. The primary supplier of classroom teachers (as opposed to doctors) are state colleges -- many of which were formerly teacher's colleges. At such institutions, much of the teaching is conducted by adjunct faculty not actively engaged in scientific research. To the extent that regular faculty at such institutions do research at all, it cannot be described as scientifically rigorous, and is far removed from the frontiers of scientific research on human learning. The same can be said of other areas of education policy research.

However, even if upper and lower tier schools of education were producing scientifically-based research, the teachers and their professional associations are in no position to vet this research and incorporate it into their teaching or their standards. Professional k-12 teacher associations such as the National Council of Teachers of English, or the National Council for the Social Studies do not base their standards on scientific research. Indeed, most members of these learned societies, i.e., practicing teachers, are not trained to evaluate scientific research. I would venture that most practitioners and education school professors in these fields would not even view the scientific method (i.e., experiments) as the most useful method of inquiry in their field.

The deep technical and scientific knowledge base in medicine produces well-defined and widely shared agreement on appropriate clinical practice. For the most part

this is absent in education. While the judgment of English, mathematics, and elementary school teachers as to the best ways of teaching a subject certainly deserve respect and deference, there is little evidence to suggest that parents cannot make informed choices among practitioners who approach their craft differently.⁴ This leads us to the next proposition.

Unregulated (Or Lightly Regulated) Markets in Education and Training Work Well

The case for the medical analogy would be strengthened if there were pervasive evidence of “market failure” in unregulated markets for education and training. While I am not aware of widespread unlicensed practice of surgery, unlicensed training and schooling is pervasive in our economy where unlicensed practice is the norm. The latter markets seem to work quite well with little or no government regulation. A review of the

⁴ Another subtle difference between teaching and medicine (as well as other professions) deserves mention. In medicine, the primary desire of a patient is simply to be made well. When we go to a doctor with a ruptured appendix, a dentist with a toothache, or a lawyer for legal representation, we want a “sage on the stage,” not a “guide at the side.” That is, we want their professional expertise put to work solving our problem. Usually, the process is a secondary concern to the end and we usually defer to the judgment of the expert professional on the best course of “treatment.” Of course, if there are several ways to achieve the same end, the consumer will need to make a choice. However, more often than not, the treatment protocols are standard, and the consumer follows the advice of the doctor to achieve the desired end (a cure). However, in education, for many parents the process is as important as the end result. Indeed, the two can be hard to separate. When parents choose a Montessori or a Waldorf school for their children, they clearly expect their children to learn basic literacy and numeracy skills, but they are also expressing a preference over a mode of inquiry and learning as well. Similarly, when parents object to the use of calculators by young children as in the initial NCTM standards or to whole language reading instruction, they are expressing a preference for a type of instruction as well as an outcome. In fact, the experience in the private K-12 education marketplace suggest that parents are perfectly capable of making informed choices among vendors who offer a wide range of instructional strategies (e.g., from constructivist, to traditional, to military schools) and can select a school that meets their preferences. We see little evidence of market failure or calls for government regulation coming from private school consumers.

functioning of these labor markets suggests that they operate considerably better than the highly regulated teacher labor markets in public k-12 education.

Researchers have estimated that American business spends between \$18 and \$43 billion (1995 dollars) annually on formal training programs for their workers and an unknown but substantial amount on informal training (Ehrenberg and Smith, 1996, p. 302). Virtually all of this training is delivered by instructors who are not licensed by the state and who have not received specialized pedagogical instruction. Historically, one of the most important sources of high quality vocational training in our economy has been the U.S. military. The various services have taken millions of high school dropouts and graduates and provided them with high quality training in technical specialty fields. Along the way, in the process of turning millions of young men and women with limited elementary and secondary education into trained aircraft mechanics, radio operators, supply clerks, etc., the armed services have taught these young recruits basic literacy and numeracy skills as well. Nearly all of this was accomplished by unlicensed instructors.

Approximately six million students are enrolled in two-year community colleges. Much of the coursework offered in these community colleges is remedial, and covers material that students should have learned in elementary and secondary schools. States do not require the faculty in community colleges to be licensed, and evidence suggests that most are not certified teachers. Nonetheless, if we judge success by enrollment growth or successful transition to four- year baccalaureate institutions, these community colleges are successfully delivering K-12 educational services.⁵

⁵ Like all other states with which I am familiar, the state of Missouri issues a single license to practice medicine, law, dentistry, accounting, nursing, and veterinary medicine. However, in the area of K-12 education the Missouri Department of Elementary and Secondary education currently issues 260 certificates and endorsements (171 vocational, 89 non-vocational). Most other states have equally

Many students receive k-12 educational services from the thousands of private tutoring firms. These range from large multinational educational firms like Sylvan Learning, to small independent proprietary firms. Many of these firms specialize in providing remedial help for students in reading and mathematics. Others, like Kaplan, focus on test preparation. In any event, these firms are selling K-12 educational services to the public. There are no state licensing requirements for teachers in these firms (or for the firms themselves) and all indications are that this market is expanding.

Finally, there is a thriving private K-12 school system in the U.S. that long predates the public school system. Private schools routinely hire unlicensed teachers. Data from the U.S. Department of Education show that 90 percent of teachers in public schools hold regular state certification in their primary teaching area, whereas the teacher certification rate for private schools is much lower – 56 percent in religious private schools and 49 percent in non-religious private schools. The rates are lower still at the secondary level. In non-religious secondary schools the certification rate is just 35 percent.⁶ Thus, while private schools do hire certified teachers, they also hire substantial numbers of non-certified teachers as well. It should also be noted that charter schools, too, hire large numbers of uncertified teachers.

The Teacher Licensing Regime Stifles Innovation and Collaboration in Teacher Training

The best way to understand this proposition is to consider an example outside of teaching. Suppose a bank wants to hire a person for a management position in their

Byzantine systems. Does anyone believe that higher education would benefit from such a licensing regime for college educators?

⁶ These are computed from the 1999-2000 Schools and Staffing Survey conducted by the U.S. Department of Education. They are reported in detail in Podgursky (2004).

information technology (IT) department. On a campus visit to the University of Missouri, the bank recruiters might interview candidates from the economics or math departments in the College of Arts and Science, finance majors from the College of Business, or computer science majors from the College of Engineering. In fact, they are free to interview and hire any candidate they choose. Or they could hire an English major. No college or department has a “lock” on the market. Indeed, the fact that the different departments compete with one another is also an important stimulus for collaboration. Higher education has many interdisciplinary programs formed in response to the education marketplace. International business is a good example. Students combine language and liberal arts training with traditional business school courses.

Contrast this situation with K-12 teacher training, where state licensing regimes create a local monopolies in teacher training. In Missouri there are 35 approved teacher training programs, all of which are schools or departments of education. In no case is there more than one program per campus. Thus, on the University of Missouri campus, there is only one entity, the school of education, that can legally recommend teachers for certification. The economics department is not permitted to train social studies teachers. The chemistry department is not permitted to train chemistry teachers.

The ironic result of this is that the tail wags the dog. The primary academic qualification for secondary teachers is content knowledge in their teaching field. To be successful, music teachers must know music and chemistry teachers must know chemistry. Indeed, public concern about educators “teaching out of field” reflects a concern about inadequate teacher content knowledge. Sound pedagogical courses tied to

a discipline (e.g., teaching math) may have value, but the most basic academic requirement is knowledge of the relevant discipline.

An unfortunate effect of the licensing system is that it confers virtually all of the regulatory power on the education school and none on the relevant disciplines. This does not mean that on some campuses education schools do not collaborate with liberal arts and science departments. However, this collaboration, where it occurs, is not between equals. The education school comes to the table holding most of the cards. Whether the education school does a good or bad job training teachers, their monopoly position on campus ensures that no other department can move in and capture the market. No matter how weak the math teachers produced, or how great the need in public schools for math teachers, the math department cannot itself recommend its graduates for certification.

Multiple Nodes for Training Teachers

In one sense, I have painted an overly bleak portrait. The current licensing regime is not nearly as tight as the proponents of the medical-style licensing would prefer. In fact, there are some welcome trends in the opposite direction. In response to teacher shortages and the quality of many traditional route candidates, some states have enacted “alternate route” programs designed to permit post-baccalaureate career changers to enter the teacher labor market in an accelerated manner. These programs were created to tap a pool of well-educated and experienced adults who would be willing to teach in a public school, but who are not willing to spend an extended period of time returning to college (paying tuition and forgoing pay) in order to take pedagogical courses and do unpaid student teaching. Such programs have sprouted up in many states and have

brought many talented career changes to public school classrooms.⁷ A good example is Troop-to-Teachers, a program is designed to accelerate entry of retiring military officers into public school classrooms.

However, these programs are designed for career changers – that is, for people who have separated from their higher education institutions for some time, not for students in the educational pipeline or recent graduates. There are fewer programs designed for new graduates. The most visible is surely Teach for America (TFA). TFA visits campuses and recruits high quality academic majors for their national program. These TFA graduates participate in a summer training program and then proceed to mentored classroom teaching. The TFA program, however, is not meant to recruit career teachers. TFA candidates agree to teach for two years, although many remain in classrooms beyond their two year commitment, and many more remain engaged with the K-12 education sector in other capacities -- in other government positions, operating charter schools, or working in non-profit organizations involved in K-12.⁸ The success of the TFA model has led to the creation of “teaching fellow” programs in several cities designed to recruit high quality academic majors for urban school classrooms. The largest of these is the NYC Teaching Fellows program, which has recruited roughly 7,000 teachers for NYC public schools. Last year, the NYC program had over 14,000 applicants and an acceptance rate of fewer than one-in-eight (<http://www.nycteachingfellows.org/what/index.html>).

⁷ The U.S. Department of Education funds a national clearinghouse, the National Center for Alternate Certification, on alternative route teacher certification programs, with data on programs and participants by state, as well as current research on the programs. <http://www.teach-now.org/>

⁸ A recent, and carefully designed random assignment study found that TFA teachers generally outperformed traditionally certified teachers (Decker, Mayer, Glazerman, 2004).

A valuable step forward would be to take the “alternate route” approach a step further and scrap the one-site-per-campus system that the current licensing regime imposes in favor of a model that permits multiple training nodes on a campus, and closer linkages between these on-the-job teacher training programs and academic departments. There is no reason why a math department could not work directly with a school district in placing majors in a job-embedded teacher training program. Alternate certification programs have opened the door. It would be a reasonable incremental step for academic departments and college placement offices to avail themselves of these opportunities. Of course, it would be most helpful if state k-12 regulators would clear away regulatory impediments to facilitate such experiments.

Conclusion

Education leaders and politicians routinely call for greater involvement of liberal Arts and Science faculty in the training of public school teachers. Indeed, this was the clear intent of Congress in the last authorization of the Higher Education Act in 2000. It is important for education reformers to understand how the current licensing regime impedes greater liberal arts involvement by limiting the number of approved teacher training programs statewide, and preventing the development of multiple training nodes on a college campus. Moreover, if proponents of the medical model have their way, the wall between the academic disciplines and teacher training will become higher still, with an even greater push toward large comprehensive schools of education even more remote from the relevant academic disciplines. In such a regime, liberal arts and science departments will play an even smaller role in teacher training than they already do.

A better approach would open up the market for teacher training and permit multiple training nodes to develop on college campuses. It would allow liberal arts and science faculty to develop creative and collaborative programs permitting interested majors become public school teachers, and would move the center of gravity for teacher training back toward the disciplines. Programs such as Teach for America and the New York City Teaching Fellows point in the right direction. Hopefully, state regulators will permit more such experiments to blossom in coming years.

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