

# Higher Education's Challenge to Provide Qualified Teachers

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Meeting the goal of having a highly qualified teacher for every classroom will require a combination of more effective teacher recruitment, improved teacher preparation, and better retention of teachers, especially in their first years on the job. Higher education plays an important role in each of these areas. Federal higher education policy is a potential route for addressing the challenge to provide qualified teachers. For each of these areas, I will discuss the need for change, indicate what role higher education might play in making the changes, and give examples of how federal policy might encourage colleges and universities to pursue the changes more vigorously. Versions of many such policies are already in place, either at the state or federal level. I give most attention to teacher preparation, where higher education plays the most central role. For each of these policies, a recurrent theme is the importance of productive collaboration among arts and sciences faculty, education experts, and K-12 staff.

**Recruitment.** Although some reports leave the impression that our country faces a dramatic, widespread shortage of qualified teachers, the balance between supply and demand varies according to geography and subject specialty. Teacher shortages are acute in California (due in large part to massive class size reductions) and in growth areas like the South and West. They are also acute in poor urban and rural districts. But elsewhere the overall supply is adequate. Some subject areas do face shortages:

physics, mathematics, special education, bilingual education. What is needed, however, is not a substantial *overall* increase in the number of teachers, but increases in teachers willing and qualified to teach in *particular* areas of need.

Higher education institutions can relieve some of these shortages by recruiting people in areas of need and by giving them the necessary knowledge and skills to be successful in schools that have been difficult to staff, thus increasing the chances that they will take and keep jobs in those schools. For example, a program initiated by the Flint Public Schools, Michigan State University, and Eastern Michigan University, with funding from the Transition to Teaching program, is recruiting para-professionals currently working in the Flint schools and offering them a program oriented toward the particular challenges and opportunities in Flint. Because most teachers take jobs close to their childhood homes, this program seems likely to graduate teachers who will stay in Flint. With course requirements oriented to that setting, these graduates have a better chance to succeed.

Federal policies can support needed recruitment by offering support for programs and students, focused on the areas of need. Current and past programs have offered forgiveness of student loans for those who teach in high need fields or schools. Support for program development can increase the number of higher education institutions that offer programs specially tailored to areas of high need. In designing pro-

grams, joint efforts between higher education institutions and the school districts in need of qualified teachers is necessary both in recruitment and in providing appropriate teacher preparation.

**Teacher preparation.** Research evidence supports the common sense ideas that:

- teachers need to understand their subject in ways that allow them to help others understand;
- teachers need specialized knowledge about selection and use of instructional materials, and about student learning and motivation; and
- teachers need practical skills of instruction and classroom management.

Colleges and universities are the primary institutions for helping teachers acquire the first two types of knowledge; colleges work with K-12 schools helping teachers learn the needed practical skills. A critical question is how successful teacher preparation programs are ensuring that program graduates have gained the needed knowledge and skills. Higher education, in teacher preparation and in other fields, is still in the early stages of creating the measures and assessment systems that will produce trustworthy evidence about what college students learn. To improve teacher preparation programs, better systems for assessing teachers' knowledge and skills are urgently needed.

Currently, teachers' subject matter knowledge is often measured by whether or not they complete a college major in their content area. That is a simple, but flawed, indicator of knowledge needed for teaching. Research shows a positive connection between teachers' preparation in their subject matter and their performance and impact in the classroom. But, contrary to the popular belief that "more is better," some studies indicate that not all the courses required for a typical college major actually help teachers become effective K-12 instructors. Up to a certain point, more college coursework is helpful, but completing a full major does not

always add to teacher effectiveness (Wilson, Floden, & Ferrini-Mundy, 2002).

For example, mathematics majors are usually proficient in manipulating algebraic expressions, but may be hard pressed to explain why solution procedures work or to create practical problems that illustrate a mathematical formula. In one research study, less than half the sample of mathematics majors could come up with an example that illustrated the problem,  $1\frac{3}{4}$  divided by  $1/2$  (Ball, 1990). Taking additional advanced mathematics courses is unlikely to fill this gap in the knowledge needed for teaching.

For elementary school teachers, the challenge of subject matter understanding is more daunting. These teachers typically teach multiple subjects (reading, writing, mathematics, science, social studies, perhaps music, art, and physical education). Few could hope to gain a deep understanding of all these subjects in four or five years of college. What is feasible is some depth in one or two subjects (perhaps reading and mathematics), with enough knowledge in other areas to make reasonable use of curriculum materials.

To improve teachers' knowledge of the subject matter needed for teaching, higher education institutions need to rethink some aspects of subject matter preparation, using evidence about the subject matter understandings of their graduates and the links between teachers' knowledge and K-12 student achievement. This will require joint efforts between faculty in the academic disciplines and experts in teaching these subjects to elementary and secondary school students. It will also require revision of the tests teachers take, to give more weight to the knowledge and skills central to K-12 teaching.

Some national initiatives have begun work to bring arts and sciences faculty together with education experts to address this challenge. The Project 30 Alliance (<http://astecproject30.org/>) and the Teachers for a New Era project (<http://www.carnegie.org/sub/program/teachers.html>), for example, both emphasize collaboration to improve the educa-

tion of teachers. National Science Foundation grant programs also stress the involvement of both education experts and subject matter faculty (i.e., mathematicians and scientists).

More remains to be done, however, to gather evidence about the success that these efforts have had in improving teachers' knowledge, especially the specific subject matter knowledge needed for effective instruction. The tests currently used for state certification, for example, may represent the content covered in the K-12 curriculum, but there is little evidence that they also represent the knowledge needed to help students learn the school subjects.

Work is also needed to improve aspects of teacher preparation that address knowledge of methods and principles for instruction. The need for such knowledge is evident in stories told about teachers—often college professors—who knew their subject but didn't have a clue how to teach. Research suggests that knowledge of principles and methods is most likely to improve student learning when that knowledge is closely tied to the school curriculum. That is, knowledge of methods for teaching mathematics is more effective than knowledge of generic methods of teaching. Improvements in this aspect of teacher preparation will require collaboration between subject matter faculty, accomplished teachers, and experts in areas like learning and curriculum design. As with subject matter knowledge, evidence about the effects of particular requirements is needed, and will be more valuable if better assessments can be developed.

Teaching skills are developed in large part through practical experience, in real schools, with supervision and guidance from those with greater understanding of teaching and learning. K-12 teachers themselves have a major role here, but the participation of university faculty can help to avoid the common problem that clinical experience too often recreates poor practices along with good ones. If field experiences can be better connected with the university-based components of teacher education,

teachers will be in a better position to draw on all that they learned about teaching. In field experiences with focused, well-structured activities, significant, positive learning can occur. Once again, better evidence about the results of field experiences would give a basis for improvement.

Federal policies can support needed improvements in teacher preparation by encouraging collaboration among arts and sciences faculty, education experts, and K-12 teachers on the major areas of teacher preparation and by encouraging the collection and use of evidence about the effects of initial preparation on teachers' knowledge and skills.

Federal policy could take a variety of approaches to encourage higher education institutions to undertake the review and program revisions needed to improve what new teachers know and can do. One approach is to require that institutions provide evidence about the knowledge and skills their graduates possess. The effectiveness of that approach depends on the quality of the measures used. As is the case for K-12 assessment programs, pushing for higher test scores is only worthwhile if the tests measure valuable knowledge.

Consequently, another approach to encourage improvements in teacher preparation would be to support development of better measures of teacher knowledge and skill. The National Board for Professional Teaching Standards (<http://www.nbpts.org/>), with federal and foundation support, has created well-regarded methods for judging the performance of experienced teachers. A parallel effort might lead to improved methods for assessing what should be learned in teacher preparation.

A third approach would be to support program development, with requirements that the development effort bring together arts and sciences faculty, education experts, and K-12 teachers and that it based development on systematic measurement of the knowledge and skills teachers gain through their program experiences.

**Retention through induction.** Many of the difficulties in maintaining a highly qualified teaching force come from the high rates of turnover, especially among teachers in their first years on the job. Although increases in the numbers of K-12 students have led to some increased needs for teachers, recent studies show that turnover is an even more important factor (Ingersoll, 2001). Turnover might be reduced by changes in teacher compensation or by changes in working conditions in schools, neither of which will be much affected by higher education. But higher education can play a role in retention by giving teachers the knowledge and skills they need to be successful, especially in their first few years on the job.

The steep learning curve that most teachers face in their first years is well documented. The typical practice of assigning beginning teachers to the most difficult schools makes those first years even more difficult. "Induction" programs—aimed to provide support and continued education to beginning teachers—have been a popular way to address the challenges of these first few years, but the content and structure of these programs is highly variable (Feiman-Nemser & Parker, 1993). In many cases, the program consists of little more than assigning an experienced teacher as "mentor," with little or no training for the mentor and little provision for the beginners to get on-site, instructionally focused coaching that would help them learn.

Some promising models for initial support exist. Both California ([www.btsa.ca.gov/BTSA—basics.html](http://www.btsa.ca.gov/BTSA—basics.html)) and Connecticut (Wilson, Darling-Hammond, & Berry, 2001) have established and funded programs for getting assistance to beginning teachers. In California, one highly-regarded model was created and initially staffed by faculty from the University of California at Santa Cruz. Other colleges might also be able to assist with improving teacher induction, by creating and staffing programs for assisting new teachers in their regions, or by using Internet technologies to run programs for new teachers in distant sites.

Induction programs represent an area for a federal role that might involve promoting the development of effective induction programs, providing fiscal support for such programs, or encouraging states or K-12 districts to pursue induction program partnerships with colleges and universities.

**In conclusion.** To sum up, getting highly qualified teachers into every classroom will require a combination of recruitment, preparation, and retention. Higher education institutions have the capacity to make important contributions to each of these three. (Yet another role for higher education is offering professional development to experienced teachers, either enhancing their initial preparation or preparing them to teach a different subject. That topic deserves a paper of its own). They can work to recruit teachers in high-need geographic and subject areas. Colleges can help teachers acquire the knowledge and skills needed for effective instruction. They can assist with induction programs that will help retain teachers by getting them through their first years with rapid improvement in teaching ability.

A range of federal policies might be used to get colleges and universities more firmly committed to these roles. Funds for student fellowships or loan forgiveness might be targeted at high need areas. Support might be given for programs designed to recruit talented students to areas of need. Improvements in teacher preparation could be encouraged by program development grants that require collaboration among arts and science faculty, education experts, and K-12 teachers, and by support for national or state efforts to gather and present better evidence about the knowledge and skills of program graduates. Improved induction programs might be promoted by support for model development or program support.

Teachers are the key to improving education. Our higher education system is the best in the world. It can and should play a central role in providing highly qualified teachers for every classroom.

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