

EXECUTIVE SUMMARY

Over the past three years, the Department of Education (DOE) has developed and implemented a variety of state-funded initiatives designed to address teacher supply and quality needs through recruitment and retention of high-quality teachers, under the umbrella of the 12-to-62 Plan. To date there has been no comprehensive, external evaluation of the 12-to-62 Plan as a whole. DOE contracted with the Center for Education Policy at the University of Massachusetts Amherst to both evaluate the individual programs within the Plan and analyze the overall Plan as a public policy initiative.

The research on this project has been a complex and intensive undertaking. Research has included: interviews with DOE and program staff; interviews with key education stakeholders in the state; focus groups of MINT participants and program staff; written, telephone, and Internet surveys of 12-to-62 program participants and supervisors; a review of Plan and program documents; and an analysis of the relevant policy, practitioner, and theoretical literature.

THE 12-TO-62 PLAN PROGRAMS

The Office of Educator Recruitment, Retention, and Career Development at the Department of Education has implemented a series of initiatives under the 12-to-62 Plan, using approximately \$4 million in interest from the Superintendent, Principal, and Teacher Quality Endowment Fund and approximately \$1 million in other DOE funds to support the following programs during the 1999-2001 time period:

- **Tomorrow's Teachers Clubs.** Purpose: to develop middle and high-school student interest in teaching. During 1999, 2000, and 2001, DOE made available \$100,000 per year to support grants of up to \$2,000 each to local schools for an advisor stipend and a start-up treasury. Among other activities, all participants are involved in tutoring and teacher shadowing. During this period, DOE awarded grants to 115 schools to establish clubs, serving 1,400 students annually. DOE did not fund Clubs in 2002.
- **Massachusetts Signing Bonus Program for New Teachers.** Purpose: to recruit high-quality recent college graduates and mid-career professionals to become teachers. Beginning in 1999 DOE gives a \$20,000 bonus and a scholarship to the MINT program (see below) for successful applicants who agree to teach full-time in a Massachusetts public school for at least four years. In 2001, the program accepted 115 participants, for a cost of \$2.3 million in bonuses, plus associated MINT scholarship costs.
- **Massachusetts Institute for New Teachers (MINT).** Purpose: to recruit recent college graduates and mid-career professionals with content expertise via an accelerated route to certification. The Institute is an accelerated teacher training program, including summer training and school-year follow-up, designed to allow qualified applicants to progress from Provisional Certification to Provisional Certification with Advanced Standing. All applicants must pass the Massachusetts teacher test in communication/literacy and in their chosen subject area to be considered for MINT. All Signing Bonus recipients are required to participate in MINT; other qualified individuals may earn a scholarship or have a district pay tuition of \$2,250 for them to attend. In 2001, the program trained 220 teachers—the 115

Signing Bonus recipients plus 105 others. The program costs approximately \$600,000 per year.

- **Attracting Excellence to Teaching.** Purpose: to recruit high-achieving college graduates to teach in areas of need. The program provides student loan reimbursement of up to \$1,800 per year for four years for teachers who graduated in the top 15 percent of their class and/or earned an honors designation with either their graduate or undergraduate degree. The program cost \$1.08 million in reimbursements for 700 teachers in 2000 and \$1.11 million in 2001.
- **Master Teachers/National Board Certification.** Purposes: to retain high-quality, experienced teachers in the teaching ranks and to develop a corps of highly qualified mentors. The Chapter 260 legislation created one route to Master Teacher status, the National Board for Professional Teaching Standards (NBPTS) certification, and DOE is working to develop other routes. DOE has set a goal of 1000 Master Teachers by 2003 and provides subsidies for NBPTS application fees. NBPTS-certified teachers who mentor in their schools/districts may be selected as Master Teachers and will be awarded \$5,000 per year for up to ten years. Districts are encouraged to utilize master teachers in leadership positions that offer increased compensation while allowing the teachers to continue to teach. Costs for FY 2002 included \$548,000 in NBPTS application fee subsidies and \$1,050,000 in annual stipends for 185 qualifying teachers, but that amount will grow as the corps of master/mentor teachers grows.
- **Summer Mentor Training Institutes.** Purpose: developed by DOE and provided by various approved vendors to train groups of experienced teachers and administrators in the skills necessary to fulfill this requirement. District teams also collaborated to design a beginning teacher support implementation plan. Over 70 districts participated in the training, with 800 educators becoming trained mentors in the summer of 2000, and 666 in the summer of 2001. The SMTI Program cost in 2001 was \$262,000. In 2002, DOE discontinued the Summer Mentor Training Institutes in favor of “Train the Trainer” institutes that focus on training mentor trainers who can go back to their districts and train mentors in the context of the local induction program.
- **Case Study Seminars for Beginning Teachers.** Purpose: to support and retain new teachers and to improve classroom practice. New teachers take a series of five support seminars in locations throughout the state, discussing issues that relate to their classroom practices with peers and experienced teacher facilitators. In 2001, the seminars served over 1,200 beginning teachers, nearly one-half of all beginning teachers across the Commonwealth, at a cost of \$189,000.
- **Teacher Career Advancement Program (T-CAP).** Purpose: to retain top-quality teachers by developing models of career paths that enable them to advance professionally and in terms of salary without leaving teaching. Based on a model championed by the Milken Foundation, this program has distributed planning grants to 10 districts and implementation grants to six districts to support work on multiple career paths and expanding roles for teachers. Annual program cost for FY 2002 was \$100,000.

The 12-to-62 Plan also includes one other program, the **Tomorrow’s Teachers Scholarship Program**. This program offers tuition remission at Massachusetts public colleges and

universities to students who graduate in the top 25% of their high school class and who agree to teach for a minimum of four years after college graduation. This program began in 1999 with 300 recipients; 700 scholarships were offered in FY2001. Unlike the rest of the programs, which are administered by DOE, the Tomorrow's Teachers Scholarship program is administered by the Massachusetts Board of Higher Education. It was therefore not evaluated in this analysis.

MINT/SIGNING BONUS - FINDINGS

The MINT/Signing Bonus program is recruiting and selecting high-quality people into the teaching profession.

- The selection process is very good, and has been improved over time.
- Principals are generally satisfied (89% would hire a MINT graduate again without reservations, and only 1% would not consider hiring one; 81% say MINT graduates have had a somewhat or very positive impact on students overall)
- Principals primarily attribute success to individual traits, such as personality, background, and/or career experience.
- Participants rate themselves highly as teachers, relative to their peers.
- 87% would do it again.
- Recruiting efforts are not yielding many candidates from beyond New England and New York (84% of applicants are from Massachusetts, 93% are from New England or New York).
- Two-thirds of MINT participants are mid-career applicants.

The accelerated nature of the program is a more important inducement factor than the Signing Bonuses.

- However, the Bonuses may have yielded publicity that caused participants to notice the program in the first place.
- The Signing Bonus appears to be a stronger incentive for recent college graduates than for mid-career participants.

The Summer Training component is insufficient.

- Significant numbers of participants say the Cooperating Teacher relationship is inadequate (40% say either poor or very poor). Problems experienced include Cooperating Teachers who are (1) not at the same grade level as their trainees, (2) not at the same subject area as their trainees, (3) disinterested/resentful, (4) unaware/unprepared for their role, and/or (5) inadequately compensated for their roles.
- The summer school experience is not comparable to regular school. Small classes and a general focus on MCAS remediation offer little practice for the realities of the school-year environment.
- Because most summer schools focus on English and math only, most trainees for other licensing areas receive few opportunities to practice their chosen content areas.
- Participants rate the theoretical workshops more highly than the practice teaching component.
- Less than 50% report that they received an adequate amount of training in classroom management, content knowledge, observing experienced teachers, and learning to work with

special needs students. On the other hand, principals noted classroom management training as a weakness in only a very small number of participants. Moreover, both participants and principals said that participants have good content knowledge. It is possible that some/many participants may need more focus on translating content knowledge into teaching strategies, as several participants noted, but a portion of respondents may have misunderstood the survey question. More research on this issue seems warranted.

- The Shrewsbury NTP site uses a different model for its cooperating teachers, in which a team of content-expert teachers observe and MINT trainees have lead teaching responsibilities. Shrewsbury participants tended to rate their cooperating teachers and practice teaching more highly than those in other programs. UMass Lowell participants, on the other hand, rated their workshop components more highly than those in other programs.
- There is some skepticism among stakeholders about whether MINT training is appropriate for urban districts. In this view, the shock of immersion in the fall is too great; some urban districts are reluctant to hire MINT graduates because they assume they'll leave. (It should be noted that some of the stakeholders expressing this opinion also indicated that they had a relatively limited understanding of how the MINT program actually worked.)

The MINT/Signing Bonus program is producing teachers in high-demand content areas.

- Almost half of MINT graduates are teaching science or math (32% and 17% respectively, of those known). An additional 10% are teaching foreign languages or special education.
- Over 50% have been hired into “hard-to-fill” positions

MINT/Signing Bonus graduates are not primarily teaching in high-need schools.

- Only one-third of MINT teachers as a whole, and of Bonus recipients as a subset, are teaching in high-need schools. Part of this may be due to the fact that urban districts often hire long after suburban districts, which poses problems for mid-career professionals anxious about employment.
- Recent college graduates are more likely (42%) to be teaching in high-need districts than mid-career participants (34%), but two-thirds of MINT participants are mid-career.
- There has been negligible success recruiting minority candidates, to date. This is, however, a common challenge for all teacher recruitment efforts.

The mentoring component is welcomed, but variable.

- Mentoring support seems particularly important for MINT teachers, given the accelerated nature of their training.
- 79% of the 2001 MINT participants say they are receiving mentoring. Of those indicating they are receiving mentoring, 26% find it poor or very poor. This means that about 42% are receiving poor mentoring or none at all.
- Mentoring is more scarce in high-need districts: 55% of 2001 MINT participants in high-poverty districts (40% or more F/RL) say they are receiving poor or nonexistent mentoring.
- Case study seminars are seen as generally useful, especially for sharing/support.
- Focus group participants indicated that they wanted case study seminars to begin as soon as school started in the fall, for immediate feedback and support.

Retention questions remain to be answered.

- Lack of records on 20% of MINT participants makes it difficult to establish a true retention rate.
- 86% of respondents say they will be teaching next year; 4% say they will not.
- 70% say they will teach at the same school next year; 12% say they will not.
- 66% say they will be teaching in five years; 7% say they will not.
- Recent college graduates are significantly more likely to say they will not be teaching in five years than mid-career participants (18% vs. 3%).

Communication with participants and districts needs improvement.

- DOE communication and support problems appear to be deeply felt by participants and site staff. 38% of MINT participants rate DOE's communication and support as poor or very poor, and focus groups with site staff and participants showed this to be a strongly held issue by a number of people.
- Program providers were rated more highly in this area (78% satisfactory or above), but the number of complaints about Cooperating Teachers being unaware of their roles when MINT trainees entered their classrooms indicates that this is also an area for improvement.

MINT has a fairly low profile.

- Principals and stakeholders don't have a clear idea of the program's goals or how it works.
- 59% of principals say they know "a little" or "nothing" about MINT.

MINT/SIGNING BONUS - RECOMMENDATIONS

Develop a marketing campaign to boost the teaching profession as a career, and MINT as a way into it.

Focus recruiting efforts in New England and New York. This is MINT's most productive pool of candidates, historically. Minority recruitment efforts should be focused in this region as well. Minority recruitment might also be improved through programs such as the "Troops to Teachers" program referenced earlier in this report.

Don't give up on recent college graduates. Recent college graduates appear to be more likely to teach in high-need schools, and are less likely to have established lifestyle needs that preclude teaching as a career. Explore existing models around the country that successfully target college math and science majors to get them interested in teaching. Consider broadening targeted majors to include other math-related areas, such as economics, engineering, business, and computer science.

Strengthen DOE's capacity to communicate with MINT participants—before, during, and after the summer program. Participants and program staff sent a clear message that more consistency was desired in this area.

Focus on the cooperating teacher relationship. This is a clear area of dissatisfaction, and solving the problems in this area would significantly improve the summer-school training model. The Shrewsbury model, in which a team of content-expert teachers observe and MINT trainees have lead teaching responsibilities, may hold promise if it can be implemented in urban schools.

Focus on the “nuts and bolts”—both process and content-based pedagogical aspects of teaching. Classroom management, grading strategies, communicating with parents, and working with special-needs students are common needs of all new teachers, regardless of their degree of content knowledge. In addition, MINT participants appear to be asking for more content-specific pedagogy—how to translate their content knowledge into lesson plans for students (although more inquiry is needed to establish the extent of this desire). More interaction with experienced teachers is also desired.

Look carefully at the needs of science teachers and how they can be met through the MINT process. One-third of MINT participants are training for science teaching, but most summer schools do not offer many, if any, science courses.

Designate Bonuses only for high-need areas: high-poverty schools, high-demand specialties, and minority candidates. Scarce state funds should be targeted at the areas where the teaching shortage is most severe. In addition, the state should consider targeting high-need schools, rather than high-need districts, since some schools in high-need districts have less need of subsidized resources (e.g., Boston Latin, which is home to several MINT graduates).

Work to make MINT more of a “grow-your-own,” district-based hiring strategy. Without district buy-in, MINT will risk being an afterthought, perpetuating the poor cooperating teacher relationships and other challenges mentioned above.

Consider whether MINT needs to be changed fundamentally if it is to meet its current goal of serving high-need districts. The demands of urban teaching are such that a Bonus and a seven-week summer session simply may not be sufficient to adequately prepare a significant number of high-quality teachers who will stay. There are a variety of one-year, district-based alternative teacher training programs involving apprenticeships with master teachers (e.g., 180 Days in Springfield, Teach Next Year, Project Open) that could be supported with MINT funding. Other district-based models could be developed, based upon the state’s alternative routes 3 and 4. Alternatively, DOE could arrange for MINT graduates in urban settings to enter district apprenticeships after their MINT training, as the following respondent was apparently able to do:

“I was the luckiest of new teachers to be allowed to share a class with my department head (1/2 of a “double-blocked” class). We worked closely together for a whole year and daily discussed ALL (and I mean all) aspects of teaching including my MINT, college, and other graduate training I have had. Were it not for that year and the generosity of a master teacher I would not be the teacher I am now. I had a true apprenticeship such as I had in my first career. If you want to turn out the best teachers quickly, have them spend one year sitting and watching a master for half of a class and then continuing the lesson for the other half. Have your seminars in the evening or whenever but put the teachers in a real classroom during the real school year.”

At a minimum, MINT should look for ways to extend its current training by several weeks in the summer and insist on rigorous induction programs and ongoing professional development for its urban-based graduates.

TOMORROW'S TEACHERS CLUBS - FINDINGS

Schools – Over half of responding advisors are from suburban schools; almost one-third are from urban districts. Fourteen percent of schools have had future teachers' clubs for longer than DOE has provided TTC funding (4 years). Clubs are most likely to include 10th-12th graders, although students as young as 5th grade are represented.

Advisors are predominantly experienced teachers, with 70% having taught for 9 or more years and almost half having taught for 20 or more. Advisors' certification areas vary, with history/social science, guidance, English language arts, and middle school generalist being most frequent. 86% are white, 80% are female.

Students do not face great selectivity barriers to club participation—the primary criterion for participation is student interest (although 20% of advisors mentioned GPA as a criterion). This is understandable for a school activity, but can be problematic if the purpose of the program is to generate high-quality future teachers. Advisors rated 42% of participating students as high academic achievers, and 8% as low achievers. TTC students are predominantly female (78%) and white/non-Hispanic (70%); 11% of participants are Hispanic, and 5% are black/non-Hispanic.

Activities conducted by at least 40% of responding TTCs include: teacher shadowing, education discussion groups, tutoring other children, reading to elementary school children, and field trips to schools of education. Other activities range from substitute-teaching in elementary schools and team-planning and teaching of lessons to activities that do little or nothing to promote an interest in or skill development for teaching, such as delivering daily announcements and mail and taking a field trip to the IMAX theater in Boston.

Impact of the TTC program, in terms of recruiting more teachers, is difficult to assess due to the relatively short duration of the program to date. Approximately 44% of advisors reported that some of their former TTC members are currently enrolled in teacher preparation programs (36% said they had not been active long enough to track this, and 18% did not know). Nearly 88% of TTC advisors agreed that TTCs “are an effective way to recruit quality students into the teaching profession,” with about 40% strongly agreeing. Almost all respondents (97%) believe that TTCs have a positive effect on student attitudes toward the teaching profession, and several mentioned positive impacts for participating teachers, as well.

Asked to predict what percentage of Club members would **pursue a career in teaching**, advisors' responses varied widely, but about 70% felt that two-fifths or more of their TTC students would become teachers. 55% of TTC students show a primary interest in early childhood or elementary education; whether this focus is likely to persist or is simply due to wanting to teach children younger than themselves at this time is unclear.

Continuation and Support – If TTC grant funding is not available, 28% of respondents say they will continue to sponsor their TTCs; 19% will not, and the rest (54%) were unsure. Respondents suggested the following other types of DOE support: (1) sponsoring statewide networking meetings for TTC advisors and students, (2) marketing and supporting teaching as an

attractive profession, (3) scholarships and awards for TTC members, (4) informational materials/videos on topics such as how to become a teacher, careers in education, and how to teach effectively, and (5) guest speakers, such as the teacher of the year.

TOMORROW’S TEACHERS CLUBS - RECOMMENDATIONS

On balance, the Tomorrow’s Teachers Clubs program offers apparent benefits—increasing interest in teaching among young people at an impressionable age—at a modest cost (approximately \$160,000 in grant funds for 132 schools in 2001-2002). The following are some recommendations for improvement.

- **Stimulate TTCs in high-need districts.** This can be another strategy for recruiting a diverse teaching population.
- **Encourage TTCs to recruit high-achieving and male students.** Currently, advisors rate only 42% of their TTC students as being “high achievers.” Only 22% are males.
- **Convene and share best practices among TTC advisors.** Advisors appear interested in learning from each other and in having materials on teaching to share with interested students. Efforts to have students shadow and interact with practicing teachers should be emphasized over more traditional “social club” activities.

ATTRACTING EXCELLENCE TO TEACHING - FINDINGS

Who are the AET participants?

- Respondents are 80% female, 90% white/non-Hispanic, 75% age 35 or younger. One-third have taught for six years or more.
- About 30% of respondents report that their primary undergraduate major was education. (Of these, half are elementary teachers and another 23% are special education teachers.) About 29% of respondents were social science or English majors. Less than 10% majored in either science or mathematics.
- Three-quarters are certified in elementary school, English, history/social sciences, or middle school, none of which are particular shortage areas. Shortage areas represented include special education (22%), sciences (8%), and mathematics (5%).
- About 70% have \$20,000 or less in outstanding student loans; 13% have more than \$30,000.
- Respondents received an average of \$1,625 in 2001.

To what extent was AET an incentive for their entry into teaching?

- AET does not appear to play a significant role in the recruitment of new teachers. 97.7% of respondents would have entered the teaching profession without the AET incentive.
- Districts and teacher preparation institutions do not appear to be using AET to recruit teachers. Only 2 of 445 respondents said that they learned about AET because a district used it as a recruiting tool. 87% of respondents did not learn about AET until after they began teaching.

- AET may have some impact as a retention tool. 45% said that AET payments had increased their satisfaction with teaching as a career, and 16% said that they are likely to teach more years as a result of AET. Participants made numerous comments about AET boosting morale and making them feel valued.

Is AET attracting teachers to high-need districts? How could this targeting be improved?

- Approximately two-thirds of respondents are currently teaching in “high-need” schools (29% or more free/reduced lunch). However, since 87% of respondents did not learn about AET before they began teaching, AET does not currently appear to have much impact on where teachers initially begin teaching. Five respondents in high-need districts commented that AET had helped retain them, after they began teaching there for other reasons.
- 10% of participants, and 8% of those not already teaching in a high-need district, indicated that limiting reimbursement to teachers in high need systems would have affected their decision about where to teach. 78% said it would not have affected their decisions (12% were unsure).
- It is interesting to note that the definitions of “high-need district” are different in AET (29% free/reduced lunch) and the MINT program (a selected list of districts with much higher free/reduced lunch populations).
- When asked what was the minimum yearly payment that would serve as an effective incentive to teach in high-need districts, nearly 90% said the incentive needed to be increased. An annual payment of \$3,000 would be seen as an effective incentive by 52% of respondents.

How satisfied are participants with the process, and how could it be improved?

- Three-quarters said they were satisfied or very satisfied with the overall administration of the AET program by DOE. 66 respondents volunteered comments about their gratitude for the program.
- 11% were somewhat or very unsatisfied, and 65 respondents (15%) volunteered comments about difficulties with communication and organization.
- Most frequent suggestions for improvement were: (1) increase the annual funding limit and/or number of years paid, (2) increase publicity for the AET program, (3) expand eligibility to more teachers, (4) don’t reduce the reimbursement by taxing it, (5) vary reimbursement according to loan amount, district poverty, or some other factor, and (6) a variety of organizational and communication improvements.

ATTRACTING EXCELLENCE TO TEACHING - RECOMMENDATIONS

Greatly enhance program publicity and market the teaching profession. Currently, it is difficult to know whether the AET payments provide adequate incentive to recruit new teachers, because most recipients didn’t learn about the program until after they began teaching. Publicity efforts should target potential teachers early enough in their careers (at the college/university level) so that the reimbursement program has the opportunity to play an “attracting” role. As part of publicity efforts, information regarding AET should be disseminated to school districts, specifically to personnel and/or administrative leaders responsible for hiring teachers.

Consider targeting reimbursements toward shortage areas. Depending on AET program goals and how the Department wants to define or redefine these goals, it may be appropriate to target scarce public resources toward the following areas:

- teachers in high-need systems,
- teachers in high-need subject areas such as math and science, and/or
- minority teachers.

Consider raising the reimbursement limits for a more targeted population of recipients.

About 45% of respondents are carrying between \$10,000 and \$20,000 in loans. It may be worth examining the reimbursement structure to see if more subsidies (either through increased payments or lengthening of the program) can be provided for these teachers. DOE could more narrowly target the types of teachers they want to recruit (e.g., high-need districts, math, science, special education, languages), and then offer higher reimbursement amounts (e.g., \$3,000 per year) to attract those types.

Examine AET’s definition of “high need” district. While 29% free/reduced lunch districts certainly face significant challenges, most definitions of the neediest districts—those worthy of special, targeted teacher incentives—would be higher, perhaps at a 40% threshold.

Continue to refine the application procedures and consider a system that makes the reapplication process easier. It is important to consider participants’ suggestions for improving the current system so that it is more efficient for everyone involved. The issue of access to internet-ready computers also deserves some consideration because some teachers do not have this access at home. It should also be noted that some Internet-savvy people had difficulty with the online application.

CASE STUDY SEMINARS - FINDINGS

What are the incentives that encourage new teachers to participate in the Case Study seminars?

- 85% of respondents received compensation for participating in Case Study seminars. This included graduate credit (66% of those reporting compensation reporting), PDPs (36% reporting), tuition reimbursement for the seminars (28% reporting), and potential for a step raise on the pay scale (4% reporting).
- 64% of respondents would continue to participate without compensation, because of the intrinsic rewards of the seminars.

How satisfied are the participants with the program and how can it be improved?

- 97% of respondents rated the Case Study seminars as “excellent” or “good.”
- 90% would recommend the Case Study seminars to other teachers.
- 98% rated their Case Study facilitator as “very competent” or “competent.”
- 95% said that meeting locations were convenient for them.
- Suggested improvements included more time on classroom management, shorter and more frequent meetings, and fewer topics discussed in more depth.

- Suggested additional topics included additional information on classroom management, dealing with the administration, and communicating with parents.

Does the program increase the confidence and satisfaction level of new teachers in the profession?

- 94% of respondents indicated that the Case Study seminars have improved their confidence and satisfaction in teaching.
- 88% said that the Case Study seminars had improved their pedagogical skills.
- 82% said that the Case Study seminars had improved their classroom management skills.

Does the program help to reinforce mentoring initiatives in the state?

- 77% of respondents see no connection between the Case Study seminars and mentoring/induction programs in their districts.
- Of those who noted connections, the most frequent responses were that topics similar to the Case Study seminars were discussed by mentors, that the two programs support each other, and their mentors recommended that they take the Case Study seminars.

MENTOR TRAINING - FINDINGS

Overview

- 80% of the respondents stated that they had significant induction programs in place in their school districts, with a strong articulation between mentoring and a more comprehensive induction program. 16% stated that they had minimal induction programs in place (usually mentoring only), and 4% have programs that are under development.
- The mentor coordinators believed that their district induction programs mutually benefited new teachers and veteran teachers (88% and 79% respectively).

Components of Induction Programs

- The majority of the induction programs have an orientation (97%) as well as a mentoring (93%) component to their programs.
- 73% of the programs have mentor workshops, and 73% have beginning teacher workshops. These programs range from the DOE-sponsored Case Study Seminars to formal workshops outside school to formal in-district or school programs.
- 65% of induction programs include support teams. Most support teams were described as informal.
- 58% of the schools have a release time component, which varies among schools.
- Other components, mentioned by 36% of respondents, include social gatherings, peer observations, and a survey/evaluation process.

Mentor Training

- 73% of the mentor coordinators stated that their districts require mentor training.
- 62% of the districts trained their own mentors. 46% used outside consultants, 39% participated in DOE-Sponsored Summer Mentor Training, and 9% used other types of training (many districts reported using more than one type of training).

- Of those who participated in the DOE Summer Mentor Training, 43% rated it as excellent, 41% rated it as good, and 15% rated it as fair. None rated it as poor or very poor.
- 71% of those who participated in the DOE Summer Mentor Training believe that it was beneficial to their district's induction program. 12% believed it was not beneficial, and 17% were not sure.
- 76% of those who responded to the survey offered ratings regarding the support and communication of the DOE-Sponsored Summer Mentor Training. Of those who responded, 11% rated communication and support as excellent and 35% rated it as good. 34% rated communication and support as satisfactory. 14% rated communication and support as poor, and 6% as very poor.
- 14% of districts responding said that there are DOE-trained mentors who are not selected to participate in the district's mentoring program. 19% of districts responding were not aware that teachers would be participating in the DOE training program before they attended.

MENTOR TRAINING - RECOMMENDATIONS

The mentor coordinators offered several recommendations for DOE's consideration:

- DOE should **support districts in developing their own induction programs** through grant funding (for stipends and release time).
- DOE should **sponsor a train-the-trainer type program** every other summer to ensure that district-based programs have the personnel they need to make them work.
- **Resources and materials for in-district mentor-training efforts** will continue to be useful and appreciated.
- DOE could, in general, help to foster **more sharing of knowledge among and between districts**.

MASTER TEACHERS/NBPTS CERTIFICATION PROGRAM - FINDINGS

What are the incentives, fiscal and otherwise, that encourage experienced teachers to participate in the Master Teacher/NBPTS program?

- The most significant reasons teachers apply for National Board Certification are the opportunity for **professional development** and the **Bonus** offered to Master Teachers.
- Payment of the **application fee** up front seems to be the strongest incentive to teachers. If most of the \$2300 application fee had not been paid up front by the DOE, 63% of Master Teachers indicate they would not have applied—regardless of whether it was reimbursable for those who succeeded in achieving Certification. This is not surprising given that about 50% of applicants fail the NBPTS program on their first attempt.
- If the Bonus was not offered at all, 58% of Master Teachers say they would not have applied for Certification. Reducing the bonus offered to Master Teachers would have reduced applications by smaller, though still significant amounts (31% to 47%), depending on the way in which the Bonus was reduced.

How satisfied are participants with the program, and how could it be improved?

- Master Teachers rated the Certification process highly, with over three-quarters stating they **would go through the process again**. They considered it to be a worthwhile professional development exercise. However, a number expressed frustration with the **lack of feedback from NBPTS** concerning their applications.
- Teachers find the opportunity for **self-reflection** the most valuable part of the Certification process. The least valuable components were the procedural issues and the assessment center exercises.
- Some changes recommended by the Master Teachers include **more feedback** from the NBPTS about the scoring of their tests, retaining the **promised Bonuses** for Master Teachers, providing **additional paths to Master Teacher** status besides mentoring, and more efficient **communication** from DOE.
- The mentoring program could be improved by creating ways for Master Teachers to **meet together** and share experiences, and through additional **mentor training**.
- The majority of Master Teachers think that the Department of Education should both support **district-based induction programs** and offer **mentor training institutes**. Among those who favored one role over the other, **three times as many were in favor of supporting districts** in building their own programs.

Does the program increase retention of experienced teachers in the profession?

- The majority (52%) of Master Teachers report an **increase in satisfaction** with teaching as a result of their Board Certification.
- 40% of Master Teachers report that their **involvement in governance and decision-making** has somewhat or significantly increased as a result of Board certification. This is fairly substantial, given that most respondents have only completed their certification fairly recently.
- 33% report that their involvement in **curriculum design and development** has somewhat or significantly increased as a result of Board certification.
- Board Certification appears to have **no net impact on the likelihood of Master Teachers to leave the classroom**. Three-quarters project they will stay the same number of years, while about the same number say they will spend more years (12%) as say they will spend less years (12%).
- Board Certification appears to have **no net impact on the likelihood of Master Teachers to leave teaching for administration**. Three-fifths project they will stay the same number of years, while about the same number say they are more likely (22%) as say they are less likely (19%) to do so.
- However, Board Certification does appear to **increase the likelihood of Master Teachers moving into curriculum director or curriculum development positions** (39% more likely vs. 8% less likely). Whether this means Master Teachers plan to do so concurrently with classroom teaching or ultimately move from one to the other is a matter for further research.

Does the program enhance the mentoring capacity of the state?

- Of the 46% of Master Teachers reporting that their roles had changed “somewhat” or “very much,” **most reported mentoring** as an additional responsibility.
- Most Master Teachers consider themselves to be good or excellent mentors, and believe that **mentoring is an appropriate role** for them to play.

- Master Teachers believe they can best be utilized as **education policy consultants** and **model teachers** as well as mentors.

MASTER TEACHER/NBPTS CERTIFICATION PROGRAM - RECOMMENDATIONS

Continue paying most of the application fee up front for teachers who apply for Board certification. The cost of application is a significant barrier to application, and even a hypothetical reimbursement of successful candidates' fees presents enough risk, given teachers' salaries, to show a large deterrent effect. Given DOE's estimate of a 50% failure rate of applicants on their first attempt, DOE may wish to consider (1) requiring certain application prerequisites or (2) asking districts to vouch for applicants by fronting application fees and being reimbursed by DOE for successful applicants. However, each of these approaches raises control issues that would have to be dealt with, in addition to the local costs incurred by the second of these. Furthermore, several candidates spoke of the benefits of the application process even for those not attaining certification. Compared to Bonus payments, which appear to have a smaller impact on decision-making, the application fees may be a relatively small cost to pay for this self-reflective process benefit.

Consider other roles for master teachers, including serving as members of education program and policy development teams. While most master teachers see mentoring as an appropriate role, it is likely that some may be better utilized in other roles. The state would be well-served by incorporating the seasoned, front-line perspective of master teachers into policy decision-making bodies and program development teams. The state could also consider developing a competitive "Master Teacher research sabbatical," for those interested and qualified, to work with research centers on documenting and analyzing the results of various education initiatives.

Convene the master teachers to discuss best practices, and disseminate products based on their work. Susan Moore Johnson and her team, among others, have documented the strong desire of younger teachers to benefit from the experience of good teachers. The MINT participants also registered this desire. This "inter-generational transfer" does not need to happen only in one-on-one settings. The Master Teachers collectively offer a wealth of good information that should be collected and disseminated.

TEACHER CAREER ADVANCEMENT PROGRAM (T- CAP) - FINDINGS

Lessons Learned

It is clear that the majority of the districts have not envisioned a paradigm shift in the way that teacher roles are structured, as a true T-CAP model demands. This is not surprising, given that the districts have only received funding for one or two years and they have pulled together a diverse group of players. This kind of group collaboration is complex, and made more so by the larger context of financial constraints and perceived negative attitude toward teachers in the Commonwealth

These districts do not perceive that the career-ladder model in its current state will solve the problems of teacher recruitment and retention – with no increases in funding, and in the current atmosphere of teacher layoffs, it is difficult for districts to “sell” the concept to the majority of teachers.

Given this context, some lessons emerge that can inform future endeavors.

Effective Strategies

DOE’s strategy of using a credible intermediary to extend its capacity appears to have been effective in this case. The five districts that were networked through Mass Insight all found that this collaboration was very positive and helpful. It is key that people who are knowledgeable and credible be involved in this process. These districts reported that having the opportunity to work with Susan Moore Johnson was extremely beneficial, and having access to knowledge about a variety of models was helpful. One district stated that Dr. Johnson “really helped us think through the details of what we wanted to do.” The networked districts had more comprehensive, sophisticated proposals and talked more about broad-based changes than the non-networked districts.

Requiring participation from all stakeholders in a district from the beginning was a valuable strategy. This makes the process more complex, but also often smoothed the road to change. Involving the union representatives generated some important conversations; however, most of the districts did not make or plan to make substantial changes in contracts, workload, or responsibilities. Focus groups of union representatives at the state and local levels could inform this process.

Process Issues

DOE needs to implement a more efficient tracking system for grant money. Some of the districts spent the T-CAP money not on development, but on other pre-existing projects in the district. Others were not able to account for T-CAP funds received.

Program plans need to include a method to track changes and research their impact. No school or district managed to implement a total T-CAP model, but many of them did implement some small-scale changes. These were not accompanied by plans to evaluate the effectiveness of those changes, which means that DOE and districts will not know if these changes are having their desired effects.

Suggestions for Future Grantmaking

If there is only a small amount of money and DOE doesn’t want to put it all in one place, then the funds can best be focused on structure, choice, and decisions that can be influenced by DOE. Narrow the focus and consider influencing change in small increments, building on the strengths and changes a district has already made.

When offering planning grants, consider asking districts to design new initiatives or programs on the basis of their current resources rather than promising money that may or may not be there in the future.

Encourage districts to consider a variety of models, rather than assuming that because a model works in one place, it will work across the board. DOE could provide an array of models accompanied by credible evaluations of the models. All models have components that have failed, and an evaluation would spell out the lessons learned from the failures and specify the conditions under which each model succeeded. Districts can then ask if those same conditions exist in their communities, gain a better understanding of how realistic the model is for them, and discuss what can make the implementation a success. The districts that worked with Mass Insight Education reported that one of the most influential components of their training was finding out about the different models being used. They wished that they had access to more.

Non-Monetary Support from DOE

DOE could find exemplary schools/districts around the nation that have made significant changes work without influx of money: many schools have made such changes by rallying around a common focus. By asking questions such as “What did they do?” “How did they do it?” “What was the context?” “How does it differ from our own?” “How is it the same?” and providing access to this information and resources, the DOE could provide additional models for schools.

DOE can gather and disseminate information on grant and funding possibilities that exist around the nation and work to link districts to these opportunities.

TEACHER WORKFORCE CHALLENGES

As part of our research, we conducted an extensive literature review on teacher recruitment and retention issues. From this literature review, as well as the program evaluations and stakeholder input, we developed a summary of teacher workforce challenges. Challenges include the following:

- **Looming Retirements of Experienced Teachers.** Forty-one percent of Massachusetts teachers are age 50 or older.
- **Failure to Retain New Teachers.** Nationally, approximately 29% of all new teachers leave teaching altogether within 3 years, and 39% leave within 5 years. Ninety percent of new hires are simply replacements for recent departures, of which only 12% are due to retirement (Ingersoll, 2001). Reasons include pay, working conditions, lack of support for new teachers, changing career expectations in terms of longevity, and lack of career progression in teaching.
- **Shortages in Particular Teaching Areas.** Certain types of teachers are in general demand across district types. These include sciences, mathematics, special education, and languages (AAEE, 2001; NASBE, 1998). In these cases, the market faces a supply problem, with not enough of these types of teachers being produced by preparation institutions to meet demand.
- **Shortages in Particular Types of Districts.** Schools serving low-income students and students of color have more difficulty recruiting qualified teachers generally (NASBE, 1999). Teacher turnover is greater in high-poverty public schools than in more affluent ones (Ingersoll, 1999). Out-of-field teaching is most prevalent in poor and urban districts (Archer, 1999).
- **Teacher Supply and Quality Linkages.** Research indicates that the teacher supply challenge is actually a teacher quality challenge. Schools rarely leave positions vacant. Therefore, instead of quantitative changes in supply-demand relationships that occur in most other labor market segments, the teacher labor market adjusts to shortages by reducing teacher quality (Fogg & Harrington, 2001; Ingersoll, 1999).
- **Undergraduate Mathematics and Science Coursework and Teacher Preparation.** The academic content needs of K-12 science and mathematics teachers are somewhat different from those of future scientists, engineers, and mathematicians. Undergraduate courses have not always accommodated these different needs, thus reducing the potential pool of future teachers. Schools of Education and Arts & Sciences departments are working together on these issues in many institutions. Some institutions have developed new courses and programs that satisfy both departmental requirements and future teachers' content needs.
- **Mid-career time and financial limitations.** Family obligations and/or other lifestyle demands, the time and financial costs of teacher preparation programs, and the information costs of locating them, can limit the effective size of this pool of potential teachers.

WHAT CAN BE DONE? AN INTERVENTION FRAMEWORK

Based upon our research and our discussions with education stakeholders, the research team has identified an “intervention framework” of leverage points for addressing teacher supply, quality, and distribution challenges. We have found this intervention framework to be useful in categorizing the different types of policy actions available to DOE and other decision-makers in this area. Teacher recruitment and retention initiatives can target some or all of the following areas:

- **Recruit more potential teachers;**
- **Reduce barriers to entry** (without reducing quality);
- **Prepare candidates** (pre-service and in-service) for the demands of schools and standards-based reform;
- **Retain more new teachers**/improve induction and mentoring;
- **Retain experienced teachers**/improve working conditions and career development; and
- **Target the distribution problem** of shortages in particular regions or specialties.

As the following table shows, the 12-to-62 Plan has elements that address each of these potential leverage points.¹ (Other, non-12-to-62 Plan policy initiatives are indicated in italics.)

<p>Recruit More Potential Teachers</p> <ul style="list-style-type: none"> • Tomorrow’s Teachers Clubs • Tomorrow’s Teachers Scholarships • Signing Bonuses • AET loan reimbursement 	<p>Reduce Barriers to Entry</p> <ul style="list-style-type: none"> • MINT accelerated program • <i>Other accelerated routes</i> • <i>Regional credential efforts</i>
<p>Prepare Candidates</p> <ul style="list-style-type: none"> • MINT • <i>State teacher standards</i> • <i>Program approval regulations</i> • <i>District-based collaboration efforts</i> • <i>Arts & Sciences collaboration efforts</i> 	<p>Retain New Teachers</p> <ul style="list-style-type: none"> • Summer Mentor Training • Master Teachers as mentors • Case Study Seminars • AET loan reimbursement • <i>Required induction programs</i>
<p>Retain Experienced Teachers</p> <ul style="list-style-type: none"> • Master Teacher certification • Summer Mentor Training • T-CAP 	<p>Target the Distribution Problem</p> <ul style="list-style-type: none"> • Targeting of Signing Bonuses to high-need areas • Targeting of AET loan reimbursement to high-need areas

¹ *Teacher Supply and Career Development: Positive Pathways for Massachusetts* (MA Education Reform Review Commission, 2002), by Ann Abeille et al., was a significant help in developing this table.

RECOMMENDATIONS

The nature of recommendations is that they tend to focus on areas to be improved. Thus they can contribute to a perception that progress is not being made. But this is not our perception as we conclude this evaluation project. As seen above, the legislature and DOE have been proactive in developing a set of programs that address each of the leverage points in our analytic framework. MINT is attracting high-quality people and has become one of the largest producers of teachers in the state. The mentor training effort has trained approximately 1500 mentors, and DOE is now appropriately focusing on building local induction capacity. The AET program is popular with participants and shows potential as a recruitment and retention incentive. Teacher career path discussions have been initiated through T-CAP. These are all laudable achievements, and DOE deserves much credit for its work in these areas.

Finally, DOE also deserves praise for its willingness to open itself and its programs to external scrutiny. We thank the members of the Office of Educator Quality for their supportive cooperation with our inquiries, and we hope that the results of our analysis will be useful in their challenging and important work.

In that spirit, and in addition to the program-specific recommendations outlined earlier in this report, the research team offers the following systemic recommendations for improving the recruitment and retention of high-quality teachers in areas of need.

1. Retention of new teachers should be DOE's highest recruitment/retention priority.

These are people who are already interested in teaching; retaining them would reduce the pressure to convince currently uninterested candidates to enter the field. DOE should continue to support district and school-based induction programs, as opposed to “pull-out” mentor training workshops, with both financial resources and technical assistance. This support should help districts surmount current barriers to mentorship/induction, especially the lack of time for interaction between mentors and new teachers, the logistical difficulties of one-to-one mentoring relationships, and the different challenges of mentoring in elementary and secondary schools.

2. Especially ensure induction/mentoring support for graduates of MINT and other accelerated programs. Our research indicates that once MINT participants enter their schools, 42% say that they receive either poor mentoring or none at all. Our research also indicates that accelerated entry is a more important inducement to potential teachers than the signing bonus. This offers a potential opportunity for freeing up resources to support the mentoring of signing bonus recipients. DOE may wish to consider restructuring the signing bonus program, so that half of the bonus would go to the recipient and the other half to the hiring school. The school could then use these funds to buy the time that is currently in such short supply, for reduced courseloads and collegial interaction between new and experienced teachers. This might have the added benefit of reducing resentment among experienced teachers regarding the signing bonus program and their inability to participate in it.

3. Reach out to the field on recruitment and retention strategies. Some aspects of Education Reform have created divisions between local educators, their associations, teacher preparation institutions, and DOE. Recruiting and retaining an adequate supply of qualified teachers is an issue on which these various groups could perhaps find common purpose. DOE should reach out to the field on this issue, convening stakeholder conferences, soliciting stakeholder input, including local educators in decision-making groups, and developing joint initiatives on identified areas of mutual interest. One particular area for joint work is the task of marketing the teaching profession (see below). Another promising area is to tap the knowledge of the Master Teachers in policy and program development and research.

4. Develop both broad and targeted strategies to promote teaching to potential teachers. Stakeholders tended to agree that the public hears too much about the difficulties of teaching and not enough about its rewards. Effective promotion of the profession will require both improving the general image of teaching as a career and targeted initiatives in areas likely to yield substantial numbers of new teachers. To improve teaching's general image, DOE should join with the teacher unions and perhaps some corporate partners to develop an ongoing advertising campaign focused on the positive aspects of teaching and the various routes and resources available to help those interested (more on this below). In addition, the promotion of teaching as a career should enlist the support and engagement of DOE, the University of Massachusetts President's Office, the Association of Independent Colleges and Universities in Massachusetts, the Massachusetts Board of Higher Education, postsecondary Arts & Sciences departments, education schools, educator unions, school districts, and others.

In terms of targeted initiatives, DOE should

- work with colleges and universities to develop a "UTeach"-style program, like the one in Texas, that exposes college students to real-life teaching experiences early in their college years and connects those interested to the educator preparation sequence;
- continue recruiting college students and mid-career professionals in the New England/New York region for MINT and other accelerated entry programs;
- consider the "Troops to Teachers" and "Pathways to Teaching" programs, particularly as a means of recruiting minority teacher candidates; and
- encourage district-based, "grow-your-own" programs, in partnership with teacher preparation providers, to upgrade paraprofessionals and encourage elementary teachers to consider secondary-level certifications.

5. Promote existing routes and resources that ease the way into teaching. The Attracting Excellence loan forgiveness program has potential recruiting benefits, but few prospective teachers know about it. Publicity efforts should target potential teachers in their college years, so that the reimbursement program has the opportunity to play an "attracting" role. DOE should collaborate with the postsecondary partners mentioned in Recommendation #4 to maximize the effectiveness of these publicity efforts. Information on the AET program should also be disseminated to all qualifying high-need school districts, especially to personnel responsible for hiring, so they can use AET as part of their recruitment "toolkit." More generally, information on "How to Become a Teacher," including all available routes, incentive programs, and regional contacts, should be visibly available on the DOE website and in secondary and postsecondary schools' career/guidance offices.

6. Complete development of a data system to track teacher supply and demand in Massachusetts. It is difficult to ascertain the current teacher supply and demand picture in the Commonwealth, and implementation of the “data warehouse” that was to have clarified this picture appears to have stalled. However, if state recruitment and retention resources are to be effectively targeted at areas of greatest need, that need must be reliably quantifiable. District reports on hires and difficulty of hiring, teacher preparation program graduation figures, and teacher retirement data should be collected into a single location and maintained regularly. DOE should either staff or contract out this function.

7. Target financial incentives more exclusively on high-need areas, including high-poverty/low-performing schools; high-demand content areas such as math, sciences, special education, and foreign languages; and minority recruitment. By restricting state incentives to high-need areas, DOE may also be able to increase the dollar amounts of the individual awards, thereby increasing the potential impact of these incentives. Current variations between different programs’ definitions of “high need” should be eliminated to increase the clarity and impact of combined incentives. DOE may also want to consider targeting high-need schools, not districts, to the extent feasible, as there can be significant intra-district variation in poverty and achievement.

8. Address the specific needs and barriers of urban, high-need schools in recruiting and retaining teachers. These include:

- *Disadvantages in the timing of the hiring process*—Urban districts are more dependent on state funds than suburban districts; the state budgeting process thus contributes to uncertainty in funding levels that can delay hiring until late summer—long after suburban districts have made their job offers. The state should seek a way to guarantee a portion of the budgets of districts that are heavily state-funded, to enable hiring to occur at the same time as in suburban districts.
- *The “shock of immersion” in the realities of urban education*—Several stakeholders reported a belief that teacher preparation programs, both traditional and accelerated, provide insufficient on-site experience in the day-to-day environment of urban schools, thus exacerbating the urban retention challenge. The state should stimulate more urban pre-service programs tied to the urban teaching experience, including on-site apprenticeship and rigorous induction/mentorship components.
- *The need for more diverse teachers, to serve as role models for the populations they are teaching*—The state should support a variety of urban district-focused, “grow-your-own” initiatives, such as urban Tomorrow’s Teachers Clubs, paraprofessional upgrade programs, and tuition and/or loan forgiveness agreements with local postsecondary educator preparation programs.

9. Encourage apprenticeship, co-teaching, and job-sharing models. A variety of non-traditional models are being used in some schools to retain teachers who otherwise might leave for personal or professional reasons. These types of staffing arrangements provide different benefits for teachers at different stages of their careers, but all focus on creating a less isolated, more collegial relationship between teachers and making teaching more compatible with changing life circumstances. For new teachers, they offer support and induction into the educator community. For more experienced teachers, they offer flexibility that may enable them to stay in the profession and not leave for family reasons. For soon-to-retire teachers, participation may offer a rewarding capstone to a career. DOE should consider developing a working group with local educators and teachers' union representatives to discuss and promote promising examples in this area. This work could, in an incremental way, help move forward the work attempted by the T-CAP program.

10. Foster more sharing of knowledge among schools/districts. In a number of instances, interviewees expressed interest in learning more from their colleagues in other schools and districts. From Tomorrow's Teachers Clubs to mentoring approaches to teacher leadership roles, there are a number of areas in which information sharing could benefit new and experienced teachers. Knowledge-sharing can take place in several ways, including convening groups of individuals, developing web-based forums for sharing curriculum and other information, and pulling together best-practice products from the field. The Master Teachers collectively offer a wealth of good information that should be collected and disseminated.

11. Continue to evaluate existing programs. Although resources are scarce, it is vital to continue conducting focused evaluation research to ensure effective and efficient program implementation. Areas for continued research include monitoring the retention rates of MINT participants and more conventionally trained teachers, monitoring and evaluating induction and professional development approaches, evaluating the Board of Higher Education's Tomorrow's Teachers scholarship program, and assessing the achievement gains of students whose teachers were prepared through different routes. With all DOE programs, it will be vital to continue to improve data collection on program participants and to keep contact information current, to enable rigorous evaluation to occur.

12. Continue to strive to improve the competitiveness of teacher salaries, both overall and in high-need areas. This is difficult to discuss in a resource-constrained environment, but the recruitment and retention challenges are made more difficult by both the perceptions and the realities of teacher pay. To the extent that perceptions are inaccurate, they should be addressed through the marketing efforts mentioned above. Any cost-saving benefits, such as loan reimbursement, housing subsidies, and retirement benefits should be promoted as well. But if Massachusetts is serious about recruiting and retaining more highly-qualified individuals, it cannot afford to ignore the huge impact of a significant salary differential on those individuals' decision-making. This is a legislative issue beyond DOE's control, but it is ignored at all of our peril.

Other, more program-specific recommendations are included in the program evaluation sections of this report. These include:

- Reconsidering the adequacy of summer school as a training ground for MINT participants, due to the great differences between the summer-school and school-year environments and demands (Connecticut's ARC program and other apprenticeship-style programs offer potential models);
- Improving the cooperating teacher relationship for MINT participants;
- Considering offering higher and more-targeted Attracting Excellence loan reimbursements;
- Continuing to support the application fees of teachers applying for National Board Certification; and
- Working with teachers' unions to gain areas of agreement on teacher career path issues addressed in T-CAP.

