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Maryland has been engaged in K-16 work since 1996, and has made progress in both alignment of standards and teacher education. The unique partnership among the University System of Maryland, the Maryland State Department of Education, and the Maryland Higher Education Commission has created rich opportunities for collaboration and results. This article describes the partnership relationships, details accomplishments in the areas of mathematics and composition, and offers a case study of Towson University as a work in progress.

The K-16 Challenge: The Maryland Case

When we look at the landscape of educational reform, we recognize that, although our public school and higher education systems have grown out of two separate traditions, they are now more interdependent than ever. Reforming one necessarily means reforming the other. We know, for example, that close to 70 percent of graduating seniors across the country intend to pursue some form of post-secondary education (National Center for Educational Statistics, 1998). We also know, from projections of the U.S. Department of Education, that the country anticipates a shortage of two million teachers over the next decade. The nation's public schools depend on a robust supply of qualified teachers in order to graduate college-ready students, and it is hard to pick up a newspaper without finding some article or editorial exhorting higher education to act on this critical need to improve our educational system.

In 1996, in response to this challenge, the leaders of Maryland's education segments (K-12, two-year, and four-year colleges) forged a voluntary partnership, supported by a multiyear grant to the University System of Maryland (USM) from the Pew Charitable Trusts. The partnership agreement described the need for a "new and substantive collaboration among leaders in the business community, K-16 education, and local and state government...that strives for all of its members to achieve the highest levels of excellence throughout all levels of education and in the workplace" (Maryland K-16 Partnership Statement, <http://mdk16.usmd.edu>).

The three segment heads—the Chancellor of the University System of Maryland, the State Superintendent of Schools, and the Secretary of the Maryland Higher Education Commission—invited business leaders, two-year and four-year college leaders, and school and community leaders to join them in a K-16 Leader-

ship Council. The Council set out to systematically define and address the multiple challenges facing Maryland public education. These issues include, but are not limited to, setting high standards for graduation from high school; aligning high school graduation requirements with college admissions requirements; redesigning teacher education; recruiting more and better teachers and teacher candidates; and retaining the best teachers in the profession.

The leadership council designated a statewide K-16 work group to formulate and operationalize its agenda, and the work group, in turn, organized itself around six committees (organizational chart can be found at website: <http://mdk16.usmd.edu/chartb.html>). Since the formation of the Maryland K-16 Partnership for Teaching and Learning, Maryland has been engaged in major educational reform initiatives in two key areas: alignment of standards and expectations between high school and college, and a comprehensive redesign of teacher education and professional development. The complexity of these issues cannot be underestimated, and this article broadly addresses the statewide context for the initiatives, and describes the challenges the agenda poses for a particular metropolitan university—Towson University—that is committed to translating policy into practice.

Alignment of Standards

Our statewide standards alignment initiative began with representative groups of subject area teachers, curriculum specialists, and disciplinary faculty, and included some business and industry partners as well. These groups addressed a number of overriding questions, including:

- What should students know and be able to do if they expect to move forward, successfully, into the world of work or the world of higher education?
- What knowledge competencies and skills predict success in college?
- Do we expect all students to achieve equally high standards?
- How must higher education change to add value for students who are increasingly better prepared?

The complexity of these issues began to emerge as the groups addressed everything from conflicting policies affecting common placement tests for two-year and four-year colleges to disciplinary group considerations of the best developmental scaffolding of concepts in mathematics and communications. The first concrete outcome of the partnership was agreement on Core Learning Goals for high school graduates in ten subject areas that the partners agreed represented the knowledge and skills essential for a successful transition into postsecondary education or the world of work. (<http://www.msde.state.md.us/>)

The next step for the Maryland K-16 Partnership was to move forward on statewide high-stakes high school assessments that would hold students accountable for reaching those goals. Statewide assessments tied to the granting of a high school diploma are a controversial move at best, and the K-16 Partnership in Maryland can be credited with a successful negotiation of the political currents in order to achieve this important second phase. The K-16 Partnership presented a unified commitment to high school assessments, and over the course of two years, used a concerted effort of com-

munity outreach to parents, teachers unions, local school boards, and state legislators to generate a level of consensus that supported the State Board of Education in its policy decision in favor of implementing the assessments.

For anyone involved in this kind of political change, the matter-of-factness of the previous paragraph belies the intense process of persuasive outreach and community engagement that was necessary to reach such a decision. It was only through the commitment of the three co-chairs of the partnership that Maryland was able to promote this high stakes policy agenda. The goal itself speaks directly to those of alignment and seamlessness: the expectation that students should be able to move through each level of the educational ladder prepared to succeed at the next step.

Redesign of Teacher Education

According to the National Commission on Teaching and America's Future (1996), teachers are the single most important variable in student achievement. The first recommendation in the NCTAF report calls for every student to have a well-qualified, well-educated, well-prepared teacher in every classroom. In 1995 the Maryland Higher Education Commission, in collaboration with the Maryland State Department of Higher Education, prepared a state plan for redesigning teacher education that addressed the two critical areas of teacher preparation and professional development. Like any visionary policy document, the process of describing goals and expectations sets multiple gears in motion, but intentionally leaves the interpretation and implementation of the policies to the organizations and groups directly affected. Thus, the K-16 Partnership worked through its committees to build alliances between and among deans of education and superintendents of local school districts, deans of education and deans of arts and sciences, disciplinary faculty and classroom teachers, and parents and business leaders from the community.

The two critical components of the plan for redesigning addressed extending and deepening the content knowledge of teachers and giving all teacher candidates an extended clinical experience in a professional development school (Professional Development Schools are defined on the NCATE web page: <http://www.ncate.org/projects/pds/pdsstand.pdf>). Yet from the beginning it became clear that the redesign of teacher education had broad consequences for the entire undergraduate curriculum, not merely for teacher candidates. The campus academic units most responsible for the content knowledge of teachers are the colleges of arts and sciences, not the colleges of education. Thus, the K-16 efforts at the University System level involve creating a campus climate in which the entire university is held accountable for the preparation of teachers. This vision has far-reaching implications for the way we define the missions of our colleges and universities, how we define faculty roles and rewards, and how campuses engage with K-12 partners.

View from a Campus: Towson University

The key institution in any systemic change in teacher education is the university that educates teachers both in substantive content of disciplines and in methods and approaches to pedagogy. In this respect, universities must be agents of change rather than conservers of tradition. They must be willing to take the steps that will fundamen-

tally change the landscape of teacher preparation. These changes are at work in many of our teacher preparation institutions, one of which is Towson University.

Towson University is a classic comprehensive institution of 16,000 students with roots as a state normal school in the nineteenth century. Today it is still the largest educator of teachers in the state of Maryland, graduating more than 700 teachers a year at the primary and secondary levels, while simultaneously possessing large professional programs in business, the health professions, and liberal arts and sciences. It is also helping to lead Maryland in redesigning the preparation of teachers. The case description below details their ongoing efforts and their responses to the challenges inherent in this changing environment.

The most immediate challenges for the university are three: 1) establish the knowledge of, research in, and fundamental mission of the university as a teaching/learning institution at all levels; (2) increase quality of academic preparation of teacher candidates in both content and pedagogy; and (3) increase capacity so that we can respond to the teacher shortage.

The Teaching-Learning Environment

Universities today do not, in general, highlight their responsibility for educating teachers from K-16. In fact, if one surveyed faculty throughout the universities in Maryland, not many would be able to articulate the goals of the K-16 initiative. Certainly academic departments would not be able to identify specific plans and programs to respond to the state teacher education initiative. More important, universities tend to downplay their role as a laboratory in which the study of teaching is a key element of the professorial role. The development of learning goals as a driver of the curriculum is not yet imbedded in the day-to-day education of undergraduates and teacher candidates. While many of the elements for substantial reform of the curriculum are under consideration (such as assessment, team teaching, interdisciplinary work, and undergraduate research, which will be discussed elsewhere), few universities drive this agenda with the same enthusiasms that might be attached to disciplinary research or doctoral programming. Many observers have noted the difference, but the larger question is how to reorient the fundamental priorities of the university. The following steps have been critical within the University System of Maryland and at Towson University in reestablishing the centrality of teacher education:

- *Money talks.* The state, the system and the university have shifted money to the education of teachers and to the study of pedagogy and curriculum reform. The creation of a K-16 Partnership Director at the University System of Maryland provided both direction and incentive to the system institutions, as well as seed money for initiatives directed toward the improvement of teacher education. At Towson University, we have moved operating dollars toward improvement of the college of education, the support of technology in the college, and the commitment of new faculty positions both in the college of education and in the disciplines in which "teacher preparation" is part of the position profile.
- *Leadership must come from the top and include presidents, provosts, and deans.* President Hoke Smith of Towson serves on the

statewide leadership council for the K-16 initiative and regularly includes it in speeches and public appearances. The provost's office has made the K-16 initiative a key goal for the entire academic division and the deans of several colleges including fine arts and communication, science and mathematics, liberal arts, and the health professions each have individual and joint initiatives underway. For example, Maryland recently mandated that K-12 teachers must utilize the arts in instructional programs without a clear indication of how to prepare inservice teachers. Towson University will this year launch an Institute for Arts Integration to offer certificates and short courses for teachers throughout the state. The provost's office has committed the necessary funding until the institute can be self-supporting through tuition dollars. The lesson is clear: unless the entire campus is aware of the importance and value attached to the study and improvement of teaching and to the importance of meeting the demand for quality teachers at every level, it will remain on the fringes of the university mission.

- *Change the reward structure in the university.* Towson University has embarked on an ambitious reexamination of promotion and tenure requirements, an effort stimulated by a desire to broaden the profile of the faculty member to include variable roles and involvement in activities such as international education, outreach and applied research for the community, and the K-12 initiative. More important, each faculty member establishes goals and direction for the coming academic year and thus it is possible for more and more faculty to participate in the K-16 initiative as part of an agreed-upon work plan from department to department. Faculty might well include participation in a K-12 classroom or research on pedagogy in the discipline as part of their university responsibilities. From the perspective of the deans and the provost, there is no reason why a faculty member could not build a successful career, within the discipline, through research on teaching and contact with K-12 schools.
- *Public and institutional support of teachers/professors.* Two of the critical elements in recruiting faculty for heavy involvement in schools and or research are salary and public support. Towson University has tried to bring in new faculty at competitive salaries, especially in the field of education. In addition, the university is careful to celebrate the accomplishments of its teachers with both publications and publicity. The office of the provost recently published *Teachers and Scholars*, a glossy publication for campus distribution and for entering students describing the accomplishments of Towson's teachers, and campus publications have highlighted the accomplishments of the College of Education and the interactions between students and teachers at every level. There is a carefully considered effort to make both the campus and the Baltimore community aware of the teacher preparation initiative.

Better Teacher Preparation

Each institution will have a somewhat different agenda on how to increase quality among teacher candidates. The fundamental change, though, must be that the entire campus assumes responsibility for the preparation of teachers at all levels so that content and pedagogy are linked at the university in a way that models effective teaching and learning. The following strategies have proved effective at Towson University:

- *Support of departments and colleges in efforts to create a synergy between content and pedagogy.* Towson University, like many across the country, has created a Center for Science and Mathematics, for the purpose of joining disciplinary specialists involved in a K-12 curriculum or with research on teaching in the discipline. One direction for universities is to foster the increase in the size of such centers and to establish faculty appointments as well as curricular authority within the centers. Towson University is also planning a Center for the Humanities to foster experimentation and development of the humanities in the K-12 environment, to offer summer courses and programs for pre and inservice teachers, and to offer summer programs on pedagogy.

Towson is also heavily invested in summer programs that encourage the study of new pedagogies for K-16 teachers and involve university faculty in these endeavors. The university has been the site of a highly successful Governors Academy for Mathematics and Science, the Maryland Technology Academy, an Arts Institute, and a National Science Foundation Summer Research Program for Undergraduates that includes teacher candidates. The university also recently provided a home for the Maryland Collaborative for Teacher Preparation, which provides research experiences for teacher candidates in the sciences at the graduate level. Each of these activities highlights the university role, joins disciplinary faculty with colleagues from the College of Education, and provides in-depth experience for teacher candidates.

- *Universities must provide teachers with the most effective learning environments.* Critical in this scenario is team-teaching that will bring pedagogy and content together, interdisciplinary courses and programs that link disciplines and better reflect the learning strategies of students, and hands-on experience with the discipline that fosters learning and heightens student interest. These experiences are critical in advanced level coursework for teachers, but they must also be imbedded in general education programs for all students. The general education program is the window on the entire university curriculum that reveals whether it really is driven by a desire to innovate and to assure that all students receive the best pedagogy and content. Through general education courses, prospective teachers first encounter teachers who will model best practice. If we fail at the general education level, we will have a difficult time recovering the prospective teacher for K-12 as anything other than a repeater of past practice.

- *Expansion of professional development schools for all prospective teachers.* The professional development school provides teachers with an internship or clinical experience so that “real” teaching events occur in a supervised and supportive atmosphere with experienced teachers. The Maryland experience has already proven the value of this model, but its expansion requires significant investment by the state and the universities. Towson University currently has nine professional development schools, which service only about 20 percent of our teacher candidates. Also critical to this concept is the involvement of university faculty both from education and from the disciplines in the professional development school itself. To accomplish this, faculty workloads would need altering once again, and departments and disciplines would have to commit to this role as important in the life of the university faculty.
- *Development of certificate programs and master’s degrees in content-related fields for primary and secondary teachers.* Critical to the education of teachers is continuous professional development. Master’s degrees in the disciplines, with specific attention to the issues of K-12 teachers, are important in providing content preparedness and an up-to-date ability to handle rapidly changing disciplines. More important is providing an avenue to new fields in information sciences, computer science, and interdisciplinary study through certificate programs and short courses that can be delivered onsite and through technology.

Responding to the Teacher Shortage

Much of the material already presented partially responds to the steps necessary to reverse the teacher shortage problem. Clearly the state and the system must move resources specifically to this priority. Universities in particular must do the following:

- Increase the number of faculty specifically in K-12 teacher preparation through joint appointments, the creation of new centers, assignments in professional development schools, or in graduate level work.
- Provide alternative paths to teacher certification in cohort and compressed time formats offered on site and in technology-enhanced settings. The key is to shorten the preparation time for those entering teaching from other professions or from nonteacher preparation curricula. The use of professional development schools and master-teacher tutorials will be essential to moving quickly in this direction.
- Significant financial inducements to recruit second-career professionals must be launched, including tuition free programs to encourage participation.
- Massive public relations campaigns within the states and at the national level must be launched to attract the best and brightest high

school graduate into teaching. Scholarship dollars must be freed at the campuses and in the state to encourage new teacher candidates.

- University admissions offices must redirect efforts to concentrate on teaching as a profession of choice in recruiting new students.

The agendas outlined in this article are daunting in many respects, and call for sweeping changes in the preparation of teachers in higher education. In some ways the timing is ideal both for increasing quality and responding to the capacity crisis. Business as usual cannot possibly meet either challenge—revolutionary approaches must be considered and embraced. One would be hard-pressed to think of a corporate comparison where there is tremendous demand and great public need, but an existing infrastructure that would not produce significant experimentation and wholly new approaches to resolving the problem. It may be an uncomfortable observation, but universities tend to be both too bureaucratic and too attached to tradition to produce revolutionary change themselves. If universities are not quick to respond, the response may come from outside the academy. In Maryland, higher education takes that possibility very seriously.

All of the University System of Maryland institutions have made commitments to furthering the K-16 concept consistent with their own individual missions. In many cases, schools, such as Towson University, with colleges of education have been engaged in creative and productive public school/university partnerships for a long time. Yet the recent attention to a K-16 concept is motivating all institutions to think broadly about preparing and recruiting future teachers, the role of the entire campus in preparing teachers, and the responsibility of higher education institutions to collaborate with their K-12 partners on standards for students and teachers. The main message of K-16 cooperation between and among the different segments in Maryland is that our state can make progress toward the goals of success for all students only when all segments participate equally by articulating expectations, negotiating realistic goals, and generously sharing our different areas of expertise.

Suggested Readings

Adelman, Clifford, *Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment* (Washington, DC: U.S. Department of Education, OERI, 1999).

Darling-Hammond, L., *What Matters Most: Teaching for America's Future*. Report of the National Commission on Teaching & America's Future. New York: Author, 1996.

Langenberg, D.N., *With Renewed Hope and Determination*. Paper prepared for the National Association of Systems Heads. University System of Maryland, 1998.

National Center for Educational Statistics, <http://www.nces.ed.gov>

National Commission on Excellence in Education, *A Nation at Risk: The Imperative of Educational Reform* (Washington, DC: U.S. Department of Education, 1983).