

## The Opposite Intended Effect: A Case Study of How Over-Standardization Can Reduce Efficacy of Teacher Education

By Bob Hughes

The hyper-regulation of education (and most recently the teacher preparation component of education) thrives on the premise that any perceived deficiencies in the educational system can be alleviated by reducing differences among the ways in which we educate people and by demanding adherence to standards. In its impact, however, this simplification has an opposite effect. Rather than raising expectations, a reliance on standards as the solution to perceived ineffectiveness has disconnected education from the more complex set of needs that should be addressed. To meet standards, teachers must often ignore issues which may also need to be addressed, but for which they are not being evaluated. Additionally, teachers must allow someone else to determine what is of value — even if that means ignoring the cognitive, cultural, and societal developmental needs of learners. As a direct result, K-12 schools now focus on a narrow band of certain content areas to the exclusion or diminution of others. For example, why should a third grade teacher in California teach any science lessons when third grade students are not being tested on science? And what purpose does music or art have in a curriculum that

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only tests linguistic and quantitative skills? Standardization has meant that we tell children that skills-based, often memorized, linear knowledge is what we value. By emphasizing what is most easily measurable in K-12 education, we eliminate significant areas of curriculum. In effect, we exclude many children from succeeding in school because of the resulting narrow curriculum that does not engage them and that does not encourage teachers to teach more than what is being tested.

With these same forces now leaping into the regulation of teacher education, we threaten to further cement a very narrow perception of what constitutes education. The question that we must ask as teachers of teachers is whether or not any standards allow us broadly to define the ways in which we meet the needs of our communities, or whether standards represent an unnecessary and ineffective narrowing of our mission. This is especially critical for those of us who prepare teachers to serve the most needy of schools. The experiences of the last decade suggest that schools with economically advantaged families are less impacted by the standards movement's narrowing of mission. Will the new teacher-preparation standards prepare teachers who can think broadly enough to evaluate and serve the needs of their students; or will we create teachers with only ineffective technical skills to serve up the latest teacher-proof curricula to the most demanding of students?

I direct a regional center of a statewide, university-based teacher preparation program. We are an alternative certification program that serves mostly beginning teachers. Our students generally teach in California's poorest urban and rural schools. In the region that my center serves, we have candidates in agricultural communities like Chualar in the Salinas Valley and candidates in Oakland and San Francisco. We work with over 200 teachers each term, most of whom are working as the teacher of record in schools where they could be part of the recycling of teachers that Ingersoll (2001) identifies as being at the core of our teacher shortage. Without a program such as ours, these people will become part of the 85% of uncredentialed teachers who leave the profession within three years. Internship credentialing programs such as ours, however, maintain an opposite retention percentage, with 89% of their graduates still in the profession after three years (California Commission on Teacher Credentialing, 2001). In California, these programs have succeeded partly because of whom they attract: mid-career changers and returnees to the workforce in their thirties. These program have also been successful because of the support systems they provide to beginning teachers. Critical to the success of these programs, however, are their roots within communities through partnerships that address specific community needs. A teacher internship in Oakland looks very different from one in Chualar. Although the immediate need in both places is the same, how the teachers work within those areas differs. Any changes in the standards of teacher preparation must account for the needs of both places. Any changes in those standards must, therefore, permit local control that allows for variation to meet local needs.

The technology standards that have been adopted as a component of the Senate

Bill 2042 reform standards in California offer a unique opportunity to see how SB 2042 can impact an ability of teacher education programs to address local needs. The technology standards are particularly interesting to follow since they are one of two areas that were mandated to begin in the 2002-2003 academic year, a year ahead of the rest of the SB 2042 requirements. Because these standards were implemented early, their implementation provides some insight into the process and outcomes that the California Commission on Teacher Credentialing are using with its standards. These technology standards provide a harbinger of what the standards movement misses and how it can negatively affect the preparation of teachers.

First a caveat: The technology standards and their requirements are not, in and of themselves, “bad.” It would be a mistake to view them as the evil hand of the state which mandates bad teaching or bad uses of technology. The primary flaw with standardization is what is missed or eliminated — and that is the case here. The technology standards inadequately require mandates as a replacement for addressing the underlying barriers to educational uses of technology, and this replacement shows the Achilles heel of the standards movement in all of its forms. There is a common mistake that the standards bearers repeat as an article of faith: If someone wants change, all that needs to be done is to demand that change and then measure if the change occurred. The case of teaching teachers to use technology as required by the SB 2042 mandates shows the fallacy of this. The standards do not address the underlying issues that are critical to the successful implementation of technologies— issues that include the cognitive and affective readiness of children and teachers to use technology, challenges created by teachers’ and their students’ self-perceptions as technology users, and issues of access. Moreover, these standards make assumptions about the cultural neutrality of technology while they assume values that are often not fully proven. As Pacey (1994), Bowers (1988), and others have noted, the implementation of any technology, especially in education, exists within the cultural contexts that a technology is found. A standardization that does not allow for those multiple contexts will not be effective and will in its implementation create the opposite intended effect.

Schools and state systems cannot assume that there are no cultural biases in the technologies we choose to have teachers use. Nor should anyone assume that choices are made with none of the cultural biases of the people who create the standards. In addition to cultural biases, a mandate to implement or learn a specific technology means making choices about why it should be used and deciding what technologies should not be used. As Cuban (2001) and others have noted, these choices have historically led to a marketplace mentality where the technology in vogue is touted as the solution for the future. These evolving assumptions have, over the past 30 years, created educational technology industries that have made little impact on what occurs daily in classrooms.

When any educational activity is standardized throughout a state, the people making decisions on the standards must decide not only what is valuable, but what

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has less value. By requiring that teacher master certain skills, the impact of standardization is that other skills are de-emphasized. An ideal standardization would allow for the kinds of variance in practice that account for the ways in which local settings can adopt and adapt to the standards. However, that flexibility is rarely accomplished. In the standardization of teacher education in California represented by SB 2042, especially, the standards prescribe (in detail) a one-size-fits-all model of teacher preparation that reduces the elements of teacher preparation to definable skills. Therefore, the following analysis of the technology standards focuses on what the demands for standardization in teacher education misses. While presuming neutrality, the technology standards eliminate some skills and require others in ways that are inconsistent with the developmental needs of beginning teachers. In pursuing the gaps between what is required versus what exists, this analysis seeks to identify the impact that these gaps will have on teachers in programs like the one in which I work.

The technology standards that new teachers must meet are divided into two levels. The Level 1 standards are for teachers in teacher training programs. The Level 2 standards apply to teachers in the induction phase of their professional development. According to the SB2042 guidelines, induction occurs in the two years immediately subsequent to a teacher's initial preparation program. The progression between the two levels is logical and sequential. In Level 1, the candidate is required to show proficiency in two categories of computer-related technology use: general knowledge and skills, and specific knowledge and skills. Within both of these areas, the emphasis is on the personal use of computers as a productivity tool, an understanding of how of computers impact ethical issues, and how technologies and their uses can be evaluated. In the Level 2 standards, the emphasis moves from an individual teacher's use to that teacher's understanding of how to use of computers as a communications tool, as a pedagogical device, and as a tool to extend students' learning. There are few (if any) of these standards in both levels that people who advocate for the implementations of technology in education would find objectionable. It is reasonable, for example, given the potential for using technologies, that a teacher "demonstrates knowledge and understanding of the appropriate use of computer-based technology in teaching and learning" (Level 1, Standard G1.5). As is the case when mandating a one-size-fits-all approach to learning, however, the issue is not what is in the standards, but what the standards leave out, and what a program must ignore or omit to meet the standard.

For example, the technology standards focus almost exclusively on computer-based technologies. There are multiple references to "electronic" or "computer" technologies. However, other instructional technologies are not mentioned. Missing are the technologies that are most accessible to the teachers who are earning a credential in the program that I direct. While it is important that these teachers know how to use computers, online communication, and electronic media, these are not the technologies that they have readily available in their schools. I would prefer to

be able to find a pathway for these teachers to build their skills with the technologies they now have: VCRs, televised broadcasts, radio, audio tapes, and still photographs. As they become proficient at these available technologies, I would like to continue their skills development with the technologies that I can provide them when they come to the university. This is the kind of scaffolding that is consistent with adult development models (e.g., Lave, 1988; Lave & Wenger, 1990) which calls for a clear progression of skills and comfort with new concepts. However, the state standards appear to want all teachers in the state to know how to use computer-based technologies exclusively; and there is no effort to address any developmental needs of the teacher.

The technology standards are limited to assessing teachers' proficiency and mastery of computer technologies; however, even there, they fall short. As the work of Becker (1999), Cuban (2001), and others have noted, getting teachers to use technology as a component of their teaching is not that easy to do. The Apple Classrooms of Tomorrow (Apple, 1995) 10-year study suggests that the technological skills development of teachers occurs on a continuum. This continuum involves the following developmental sequences:

Stage	What Teachers Do
Entry	Learn the basics of using the new technology.
Adoption	Use new technology to support traditional instruction.
Adaptation	Integrate new technology into traditional classroom practice. Here, they often focus on increased student productivity and engagement by using word processors, spread-sheets, and graphics tools.
Appropriation	Focus on cooperative, project-based, and interdisciplinary work—incorporating the technology as needed and as one of many tools.
Invention	Discover new uses for technology tools, for example, developing spreadsheet macros for teaching algebra or designing projects that combine multiple technologies. (Apple, 1995)

As I have noted elsewhere (e.g., Hughes & Yenkin, 1998), that evolution from entry to invention can take as long as five years for experienced teacher, even with significant support and access to technology. The evolution requires that teachers' needs as learners be addressed. The factors that influence their growth as technology users include their access to technologies, their affective response to them, and their self-perceptions as technology users. A demand to grow, as in the case of any developmental learning, will not create growth. In the case of beginning teachers, this developmental process can be entirely subverted by insistence on meeting mandates. Dede (1998) has noted that getting teachers to use technology appropriately takes time and significant effort. If we expect beginning teachers to become appropriators and inventors with technology, then we must create learning oppor-

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tunities for them to grow into that awareness. These opportunities must allow for the gradual development that they will undergo through their explorations.

The teachers in my program are teaching in schools where the technology they have available to them is more than likely in a computer lab with individualized learning systems which do little to encourage inventive uses of technology. If they have a computer (or computers) in their classroom, the software they have available is most likely limited to low-level games or restrictive and self-paced study programs. Moving from entry to invention is not something that people naturally do, and little (for the candidates I see) in their environment encourages that evolution. My program needs the flexibility to allow our candidates to acclimate and develop within these contexts, but the standards do not allow us to make any accommodations—the standards demand that we teach all of our candidates to use digital media. While asking beginning teachers to develop proficiency as users of technology (at the same time they are being mandated to meet all of the other standards required of them), any program preparing teachers must question how it can help them developmentally and within the contexts they encounter.

The SB 2042, in its technology mandates, does not allow a school of education to account for the developmental or contextual needs of its candidates. The technology standards assume that because people use technology, they will become proficient with using it as a pedagogical and curricular tool. With this reasoning, a teacher who can use Microsoft Word to write a parent letter should be able to make the leaps necessary to use computers in her/his daily teaching. That is the same kind of flawed syllogism which says that all speakers of English should be able to teach it. While the technology standards assume that teachers will become appropriators and inventors with technology, these mandates do not translate well to actual teacher development. Taking a beginning teacher from entry to invention requires that the teacher develop a growing understanding of how to apply what she/he learns within the context of her/his classroom, school, and community. This sort of development takes time and significant support—not just an insistence or mandate.

The standards also assume a benefit for technologies, without requiring a critical examination of how they are implemented. While my previous work (e.g., Follansbee, Hughes, Pisha, & Stahl, 1997; Hughes, 2002) and that of others suggest that there are positive benefits to using technologies in education, no research offers a blanket approval for technologies in schools. The standards come close to acknowledging this when they require teachers to evaluate the efficacy of a technology (software evaluation, for instance). But the standards fall short of the needs which the teachers I work with have. How will their use of a specific technology assist or hinder the children they teach in succeeding as learners? As I noted previously, technology is not value neutral. The use of technology within education is packed with cultural and societal assumptions that teachers must understand and explore. When do teachers start questioning the values which computers and other technologies bring to their teaching? When do we teach them

to become thoughtful explorers of what happens in their classroom? When do we encourage teachers to become more than technicians who can adopt or implement the latest canned program? When do they discover which experiences are appropriate or inappropriate for children to have with computers or video cameras or audio tape recorders? The standards, in their demands to mandate teachers' use of computer-based technology, avoid those questions altogether. By focusing exclusively on product use, the standards miss an opportunity to help teachers reflect on their own circumstances and develop the capacity to move to the appropriation and invention levels identified in the ACOT study. Thus, in effect, the standards have the opposite impact than they intend: Instead of moving teachers to higher levels of technology use, the mandates ensure that teachers never move beyond adoption or adaptation levels.

As with the other SB 2042 standards, the technology standards have narrowly defined what teachers must know. As with the rest of the SB 2042 requirements, the focus is on the technical development of teachers, rather than the intellectual development of teachers. The insistence on narrowly focused preparation is the hallmark of the SB 2042 revisions, and this narrowness threatens to define teacher education as technical training. In the past implementation of the Ryan credential, the state allowed programs the flexibility to make the kinds of adjustments they needed to develop more broadly educated teachers who could adjust to the demands of the situations in which they found themselves. SB 2042 reduces this flexibility by increasing the mandated curriculum.

In the end, this move toward standards as the answer to perceived educational inadequacy mostly affects the teachers in programs like the one in which I work. The teachers who come to alternative programs like mine need training to help them be the most adaptable and skilled teachers in the state. As Linda Darling-Hammond (2000) and others have found, these teachers are in the state's most needy schools. The state cannot afford to have teachers in these schools trained narrowly. The threat, however, is that programs like mine will not be able to afford opportunities for innovation and exploration. On my campus, as the program director, I am responsible to show programmatic results to the department of teacher education, the campus academic senate, the dean, and the provost. Statewide, our program reports to the California State University Academic Senate and the Commission on Teacher Credentialing. With the development of increased statewide mandates, my program will be forced to reduce what it offers so that our teachers will show the same "results" as other programs' teachers. Instead of being encouraged to work with teachers to meet the needs in their classrooms, my program's faculty will be increasingly required to ensure that our candidates are meeting the demands of the required Teacher Performance Expectations and the Teacher Performance Assessments.

The demands of these standards are not going away. We cannot choose to ignore them without jeopardizing the accreditation that allows us to do our work. Therefore, the solution to this narrowing of the mission of teacher education

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requires thinking about teacher education in new ways. One of the provisions of the SB 2042 requirements provides an opportunity for this reexamination. Previously, schools of education remained at some tension with K-12 systems who want their teachers prepared to teach a specific curriculum or with a specific perspectives. This tension came from a system where districts and county offices wanted teachers to have training in specific skills, and higher education wanted to focus on a theoretical framework. That tension could have been healthy if it had forced higher education to maintain some grounding in the contexts of the K-12 schools for which they prepared their candidates. Because there were only minimal requirements for the two levels to work together, and because higher education has retained control over the process, K-12 systems have had little impact on teacher education, and there was often no reason for higher education to consider local contexts. SB 2042 challenges that imbalance. It requires higher education programs to create serious partnerships where K-12 systems have substantive input into the curriculum of teacher preparation. It also gives responsibility for the induction phase (the two-year period following initial credentialing that will be required for a professional clear credential) in teacher preparation to K-12 agencies with a requirement that they create partnerships with higher education.

It is in these partnerships that any hope of addressing the inadequacies of SB 2042 must take root. Partnerships provide a starting point where context-based need and research-based solutions can meet. This starting point assumes that both partners in the process bring their needs and strengths to the building of solutions. A university which creates a course to meet the Level 2 technology standards, for example, must understand the levels of technology use among the schools where its teachers will work. District and county offices that train their teachers in technology should be working with their higher education partners to ensure that they are doing more than technical training.

An example of this is found in a course that I teach at California State University, Monterey Bay. The course is titled "Technology as a Tool for Creativity in Multicultural Classrooms." I created this course for practicing teachers, and I intended for teachers to explore the broad issues of equity that impact how they use or do not use technology in their teaching. The course assignments are aligned with the state's Level 2 technology requirements, so it has been approved for teachers needing to obtain a clear credential. The course is also a component of CSU Monterey Bay's master's degree in education. Rather than being a class where teachers learn how to use technologies, it is one where they explore the social and pedagogical implications of technology and then create their own implementation in ways that use technology to address the complex needs of their students. This is the kind of course that universities can offer, and professional development projects (typically found in districts and county offices) avoid in favor of technical training. In discussions with the induction programs surrounding the university over the past year, however, we have reached agreements where the induction programs will



encourage their students to take this course as a component of the induction process toward a clear credential. Because of this, students will meet the state requirement, they can be making progress toward a masters degree, and they are doing more than learning technical skills.

Teachers cannot be trained as technicians who deliver a pre-set curriculum in a specific way, nor can they learn abstracted theories that are not grounded in the needs of specific contexts. What happens in a public classroom is far too complex to be managed successfully by someone who cannot daily implement and create practical pedagogy that is grounded within sound theories. A teacher who only learns to use the Accelerated Reader software, for example, will most likely never explore how to use computers or video tapes or audio tapes to support a balanced reading program. The mandated partnership between K-12 and higher education offers the opportunity to create ongoing substantive discussion. These partnerships will work if they allow each partner to advocate for its perspective and bring its strengths to the discussion. These partnerships offer the potential for a remedy against the narrowing represented by SB 2042. By opening communication and creating shared responsibility for training teachers, the state's universities, school districts, and county offices of education must work together to forge a balanced curriculum that addresses local needs.

The alternative is a severe imbalance in favor of narrowly defined skills training for teachers. As schools of education we must return to the question of our mission. Are we preparing thoughtful, adaptive professionals, or are we molding technicians? As a document, and in its implementation, the SB 2042 standards push the state's higher education programs toward becoming technical skills schools. SB 2042 emphasizes the teaching of a narrow set of subject areas that are defined in very narrow ways. It encourages schools of education to develop teachers who can teach to tests and subject matter competencies, rather than teachers who understand the context of students' needs and can create appropriate curricula to meet those needs. In past times, teacher educators had the capacity and liberty to address what was missing in the needs of the students they served. That capacity and liberty threatens to be taken away in the name of standards which encourage a homogenized, decontextualized system of preparing teachers. This threatens to de-skill the teaching profession in the ways already implemented by other crafts and professions that have relegated their employees to becoming interchangeable components of an automated process (e.g., Zuboff, 1988). While that sort of delivery-focused model may work to increase the efficiency of a bank or sawmill, in the complex acts of teaching and learning, it will only serve to exacerbate existing inequities that already divide our educational system.

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