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Paint-by-Number Teachers and Cookie-Cutter Students: The Unintended Effects of High-Stakes Testing on the Education of Gifted Students

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During the year 2007, national education policy emphasizes the evaluation of students, teachers and schools based on students' test scores. While education professionals at all levels are charged with raising test scores, they are also expected to keep pace with current educational practices. The research presented in this article examines the results of a professional development program aimed at providing teachers with the most current knowledge of gifted learners and how to teach them. What is the influence of national accountability and high-stakes testing policies on professional development reform efforts? Can teachers enact best-practice teaching and learning strategies honoring the needs of gifted students within the reform movement directives?

Paint-by-number kits can be bought in craft stores across the country. The template of a picture is imprinted onto a blank canvas with numbers labeling each open section. Each number represents a paint color, all of which are included in the kit. Anyone who can hold a paint brush can achieve the prescribed picture—just dip your brush, follow the numbers, and stay in the lines! Can teachers be given such a template in order to create picture-perfect test scores? Should they be? If they achieve this goal will they produce cookie-cutter students rather than maximizing the potential of all students? These questions have surfaced in the literature in response to some reform initiatives.

Evaluating teachers and students on the basis of test scores is national policy in the year 2007. While education professionals at all levels are charged with raising test scores, they are simultaneously expected to prepare a growing body of diverse learners as 21st-century workers and world citizens. Can educators follow best practices from educational research and honor the differing needs of all students, including the gifted, within the reform movement directives? Or do mandated policies push differentiation for the gifted to the background, emphasizing uniformity, and creating a cadre of paint-by-number teachers and cookie-cutter students?

The skills necessary for students to succeed in this era have been consistently identified by various stakeholders in education: multiple literacies in the digital age across genres and disciplines, inventiveness and critical thinking skills, productivity and effectiveness at interpersonal communication and cooperation, and the ability to apply learning to real-world applications and problems (CEO Forum, 2001; North Central Regional Educational Laboratory & the Metiri Group [NCREL], 2003; Partnership for 21st Century Skills, 2003; U.S. Department of Labor, Secretary's Commission on Achieving Necessary Skills, 1991).

Additionally, researchers have made inroads into understanding the ways students think and learn. In *How People Learn*, Bransford, Brown, and Cocking (2000) prompted educators to reconceptualize the purposes of education—from seeing the student as an empty vessel to be filled with knowledge, to being an active participant in the educational process who needs, above all, to learn how to learn.

> The meaning of knowing has shifted from being able to remember and repeat information to being able to find and use it. . . . (T)he goal of education is better conceived as helping students develop the intellectual tools and learning strategies needed to acquire the knowledge that allows people to think productively about history, science, and technology, social phenomena, mathematics, and the arts. (p. 5)

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Advances in learning theory have led not only to new goals in education but also to a renewed quest to deliver instruction using research-based teaching methodology. Cognitive learning theorists and professional educators have worked together to map these new understandings onto effective teaching and learning strategies for use in the classroom (Bransford et al., 2000; Marzano, 2003):

1. Students need to actively participate in their learning, and teachers need to use constructivist teaching pedagogy to facilitate learning (Piaget, 1954; Unger, 1994; Wiske, 1994).
2. Assessment should be used *for* student learning with teachers providing assessment feedback to students creating an ongoing dialog for improvement (Appalachian Education Laboratory [AEL], 2005; Marzano).
3. Students are not all the same. They come from different backgrounds, learn at different paces, and have different learning styles and strengths in differing domains of intelligences. Hence, teachers need to attend to these differences using differentiated instruction techniques (Gardner, 1975; Tomlinson, 1999; Tomlinson et al., 2004).
4. Cognitive learning theorists and professional educators situate today's learners as natives in the digital landscape and note the importance of continued research on teaching them to be successful in *their* 21st-century world.

Concurrent with the emergence of these generalizations about learning, the 21st century has been characterized by demands for educational reform driven by the political community. The No Child Left Behind Act ([NCLB] U.S. Department of Education, 2001) extends the push for standards put forward in 1983 with the "Nation At Risk" educational platform and accompanying policies. The current vehicle for state compliance is federal funding contingent on the development of accountability systems, performance on high stakes standardized assessments, and meeting annual yearly progress requirements.

At times the directions emanating from such educational policies set by political leaders are not consistent with findings of scientific research and professional practice (Scot, Heinecke, Callahan, & Urquhart, 2009). What happens in the schools when teachers and administrators try to enact "best-practice" teaching and learning strategies in the context of a politically dictated education reform movement? According to Fullan (2000), school personnel work desperately trying to cope with "a sea of excessive, inconsistent, relentless demands. Policies are replaced by new ones before they have had a chance to be fully implemented. One policy works at cross-purposes with another one" (p. 12).

This article investigates the validity of Fullan's assertion by examining how a large school district is responding to the pressures of the current accountability movement while also participating in a large-scale professional development campaign to increase the teacher knowledge base about best-practice teaching and learning strategies for gifted students. In particular, this article explores the influence of the context of accountability and high-stakes testing policies on professional development reform efforts. The research questions guiding the investigation are as follows:

1. What are the effects of a high-stakes testing environment on a professional development initiative based on current knowledge of effective pedagogy in services provided to gifted students?
2. What are the effects on teachers enrolled in this professional development program when messages from administrators about what is valued in classroom instruction conflict with those presented in the professional development program?
3. What are the teachers' perceptions of the effects on instruction and student outcomes when a school district attempts standards-based, high-stakes testing reforms and reforms in gifted education simultaneously?
4. How is support for the professional development program aimed at offering high-quality services to gifted students perceived by teachers relative to other reform prerogatives?

LITERATURE REVIEW

The research related to this article falls into five general categories: (a) 21st-century learners (of which gifted students are a subset) and learner outcomes, (b) student learning and best practice teaching strategies in gifted education, (c) professional development, and (d) the political context of reform.

21st-Century Learners and Learner Outcomes for All Students, Including Gifted Students

In order to succeed in tomorrow's workplace, students need an ever-increasingly complex set of skills (CEO Forum, 2001; NCREL, 2007; Partnership for 21st Century Skills, 2003; The Secretary's Commission on Achieving Necessary Skills [SCANS], 1991). In 1991, SCANS posited that students need to go beyond learning basic skills to developing critical thinking skills (i.e., making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning); and they must be competent in working with the most current technologies. In addition to the development of critical thinking and technology skills, the commission identified personal characteristics such as individual responsibility, self-esteem, sociability, self-directedness, and integrity; and interpersonal skills such as working on teams, teaching others, serving customers, leading, negotiating, and working well with people from culturally diverse backgrounds as necessary characteristics for success

in the workplace. The CEO Forum publication, *Key Building Blocks for Student Achievement in the 21st Century*, reemphasized this set of skills: "In the knowledge-based economy, knowing how to locate information quickly, weigh and evaluate information for bias and accuracy and synthesize and apply acquired information to solve problems will be a primary asset" (p. 7). Clearly, outcomes for today's learners should incorporate complex skills that go beyond rote learning and memorization.

How Students Learn and How to Teach Them

Recognizing that each learner brings unique conceptions about the way the world works to the classroom, Bransford et al. (2000) point out: (a) the importance of considering learners' experiences and their unique conceptions when planning instruction, (b) effective learning and competence in a discipline result from a blending of deep factual knowledge and understanding of those facts, (c) knowledge and understanding must be combined within the context of a sound conceptual scheme and an organizational framework in order for efficient retrieval and application, and (d) metacognition is important in assisting learners in taking charge of their own learning. Bransford et al. (2000) identify additional principles of effective teaching associated with higher levels of achievement and understanding in the discipline. These include not only considering student preexisting understandings but eliciting and using those preexisting understandings, teaching for depth in subject matter, offering multiple examples illustrating the same concept, supplying a strong foundation of factual knowledge, and assessing for purposes of accountability with tools that evaluate deep understanding rather than shallow knowledge.

The Appalachian Education Laboratory ([AEL], 2005) compiled a parallel compendium of effective teaching practices that focus on the use of preassessment to determine the current level of student learning and basing curricular differentiation and instruction on assessment results (labeled *diagnostic teaching* in the summary by Bransford et al., 2000). The AEL bases its recommendations for the use of grade- and discipline-appropriate teaching strategies (e.g., student-centered activities, hands-on activities, and activities related to students and their life experiences) on criteria of the National Board of Professional Teaching Standards (AEL, 2005). The AEL also suggests the use of flexible grouping strategies to maximize student achievement, modifying questioning strategies to promote higher-level and critical thinking, and the application of the revised Bloom's taxonomy (Mager, 2002) to develop students' higher-level thinking. Based on their review of the literature, Hunt, Touzel, and Wiseman (1999) reinforce the importance of asking both higher- and lower-order questions, incorporating student ideas during instruction and adapting levels of instruction to match student level of achievement. They also point out the importance of providing clarity and variability in lesson presentation as another critical attribute of successful teaching.

Finally, researchers and theoreticians direct teachers to employ culturally responsive teaching strategies (also referred to as providing learner centered environments in *How People Learn*; Bransford et al., 2000; Ladson-Billings, 1994). According to Ford and Harris (1999), to the degree that the general population or populations of gifted students include students from environments that put them at risk for achieving their potential, the direction to base learning on student experiences and to provide learner-centered environments is critical advice.

These practices of teaching, reflective of the essential principles guiding curricular and instructional practices for achievement outcomes or establishing positive classroom climate, when brought together as a curriculum for a professional development experience, can help teachers bring about high levels of achievement for 21st-century learners from all socioeconomic, racial, ethnic groups across all levels of achievement.

Best Practices for Gifted Education

The purpose of gifted programs is to attend to the unique characteristics and needs of gifted learners while educating them at an appropriate level of challenge. The National Association for the Gifted (NAGC, 2000) established criteria for exemplary curriculum development for meeting the needs of gifted learners that were affirmed and expanded in the NAGC-CEC Teacher Knowledge and Skill Standards (2006). According to these guidelines, curriculum should be articulated across all grade levels and disciplines with objectives, content, and resources reflecting a level of challenge matching the student's readiness to learn. Like the general guidelines for good teaching practices noted above, NAGC standards direct teachers to create levels of challenge based on sound assessment of individual learner needs. Students are encouraged to learn at their own pace and to delve deeply into interest areas. Teachers should be knowledgeable in content areas, recognize powerful curriculum, and understand how to modify curriculum and instructional practices for individual students. Finally, teachers should provide specific instructional strategies based on student preferences and recognize that what might work for one student is not the answer for all (NAGC, 2000, 2006; Tomlinson, 1999).

Differentiation built on acceleration and enrichment of content are considered means of modifying curricula so that students will not be engaged in learning activities geared toward the learning of facts, concepts, principles, or skills already learned. Characteristics of curricula and instruction resulting in exemplary learning activities for gifted students summarized by Burns, Purcell, and Hertberg (2006) include content aligned with local, state, and national standards at a level of challenge matched to the learner's current achievements and learning potential; assessments aligned

with content goals and sufficiently high ceilings to allow for assessment of the full range of student achievement; engaging students with introductory material that is enjoyable and interesting to students; varied teaching strategies to promote cognitive engagement; authentic and open-ended extension/enrichment activities linked to content goals that enrich and expand student learning in important domains.

According to Burns et al. (2006), superficial, fact-oriented learning must be replaced with more advanced content, generalization and principles, strategies to provide students insight into what "experts in the discipline do, question, develop or investigate" (p. 94). They also stress: (a) the development of activities in which students must use their existing knowledge to create richer and deeper understanding of the content; (b) student exposure to both primary and secondary resources that provide challenge at different levels of reading proficiency and cognitive understanding; (c) learning situations requiring transfer of knowledge and skills as well as application of knowledge and skills to solving complex problems; (d) to the collection, analysis, and interpretation of raw data to investigate advanced level questions and solve new problems; and (e) Socratic questioning to scaffold student understandings.

Change Through Professional Development

When education practice needs to be changed or improved, one primary remedy is professional development of teachers. While professional development has served as a vehicle for educational improvement and reform, it is often found to be ineffective, producing disappointing results (Borko, 2004; Joyce & Showers, 2002; Rowell, 2007).

Reasons for Ineffectiveness of Professional Development

The first reason postulated for the ineffectiveness of professional development is the context in which teachers work. Educational reform is taking place in an environment characterized as "complex, turbulent, contradictory, relentless, uncertain, and unpredictable" (Fullan, 2000, p. 12). The current climate of reform has placed schools under pressure to improve and has placed administrators and teachers under a microscope. Second, educational practice has not changed in any significant way since its inception in this country. According to McMullen (2006), "the biggest impediment to . . . change is the inertia of our existing system. We are trying to change the current practice of educators, but in doing so, we must overcome practices that have been in place for quite some time" (p. 28). Third, the delivery models and support for staff development may be a cause for failure. According to Joyce (2002), when staff development opportunities for teachers are based on demonstration (typical workshop), even when followed by time to practice (apply the skills in a hands-on workshop), teachers are able to demonstrate the skills, but only 10–15% actually use the new skill in the classroom. Joyce and Showers (2002) measured the effects of demonstration-type staff development and found that workshops, "one-shot" strategies, with no follow-up components, wasted a full 90% of staff development dollars. According to Scot (2005) and Guskey (1994) teachers need ongoing professional development in a supportive environment. Finally, the most significant barrier for educational change is lack of leadership and inconsistent support for the reform (Fullan; Hackman, 2002; Sarason, 1990; Scot et al. 2008).

Influences on Positive Outcomes of Professional Development

Despite a grim portrayal of staff development, some researchers have found instances where professional development has helped create positive change, and they have identified key elements that have made change possible. One key to change is a school's commitment to teamwork, where teachers, support staff, and leadership work together toward a common, stated purpose. "The development of a professional community must become the key driver of improvement" (Fullan, 2000, p. 12).

Hackman (2002) further elaborates on the conditions necessary for the "work-teams" of the "professional learning community" to be effective. The team must (a) be a real team rather than a team in name only; (b) have a compelling direction for its work; (c) have an enabling structure that facilitates rather than impedes teamwork; and (d) operate within a supportive organizational context. Specifically, according to Hackman, actions, not just words, announcements, or mandates, are key drivers to success. Finally, a growing body of evidence suggests that top-down mandates often impede the progress of educational reform (Giles & Hargreaves, 2006; McNeil, 2000; Oakes, Quartz, Gong, Guiton, & Lipton, 1993).

Current Political Context

Program implementation is influenced by the complexities of the political, organizational, social, and economic contexts in which it unfolds (Scot, 2005). These conditions have a significant influence on school improvement, reforms, and innovations (Oakes et al, 1993; Shadish, Cook, & Leviton, 1991). The current political climate based on a national movement of increased accountability began with Nation At Risk (Goldberg & Harrey, 1983), was given additional reinforcement at the education summit of the nation's governor's in 1989 (National Goal's Panel), was reemphasized in Goals 2000: Educate America Act (U.S. Congress, 1994), and many other policy group publications, culminating in the more recent reauthorization of the NCLB (U.S. Department of Education, 2001).

The demand for improved content standards and accountability at the level of schools and pupils is a context underlying the implementation of school improvement programs and all school reforms and professional development activities. Systems of accountability, including revised state content and performance standards, high-stakes testing systems, accountability reporting systems, and systems of rewards and punishment, have been instituted by almost every state (Moon, Brighton, & Callahan, 2003).

Accountability and high-stakes testing policies appear to influence philosophies and practices of teaching and learning resulting in many unintended consequences (Jones, Jones, & Hargrove, 2003; Moon et al., 2003; Neill, 2003). According to Wenglinsky (2005), the implementation of high-stakes testing has resulted in teachers teaching in ways that are at odds with current best practices, ignoring what is known about cognitive learning theory, and disregarding the calls for the teaching of 21st-century skills and higher-order thinking abilities. How does this current educational context influence or constrain the implementation of a professional development reform for gifted education?

DESCRIPTION OF RESEARCH

Background

Project LOGgED ON, a federally funded grant project, is designed to increase access to highly challenging online science programs for gifted learners, including underserved populations (rural, minority, and low-income students), and to provide professional development, also online, to the educators that support these students. The professional development courses were designed to instruct teachers on effective pedagogy for gifted learners and were made available, free of charge, to any interested teacher in the participating school district.

Data collection for the professional development component of the project started at the onset of the project and included enrollment/completion statistics, pre- and posttest scores, surveys, e-mail correspondence, course discussion board entries, and course evaluation forms. The data analyzed in this article are derived from one aspect of the professional development component of the program, specifically discussion board entries coded as "policy discussion." Details are discussed more fully in the methodology section. One author of this article is an outside data analyst, while the other two are principle investigators on the project.

The online professional development courses were created to reflect the recommendations presented in the literature review above, emphasizing teachers as active learners, building on their existing knowledge, and taking place in professional communities. Project LOGgED ON addresses this challenge by offering a case-based, online approach to professional development courses. Using the case-study method, the courses help teachers understand and address the complexity of today's classrooms and engage in analyses of real-life scenarios focused on issues specific to the plight of underserved populations of gifted learners and gifted education pedagogy in general. In an interactive online environment, participants develop problem-solving skills to apply in professional decision-making and instructional leadership. Courses utilize discussion groups, a virtual library, and video clips of experts in the field discussing seminal issues in gifted education.

Courses

Over 500 teachers from all levels of teaching in a large urban school district participated in one or more of the five courses offered in the series: (a) Introduction to Gifted Education; (b) Curriculum Differentiation; (c) Models and Methods in Gifted Education; (d) Teaching and Learning; and (e) Problems and Issues. Experts in the field with doctoral degrees in gifted education served as the instructors. The courses were endorsed by the school district in two ways: the offering of in-service credit toward state endorsement and awarding priority teaching assignments—AP courses at the secondary level and cluster groups of gifted students in elementary classrooms. The staff development coordinator in the district recruited teachers (across all disciplines and grade levels) for participation in hopes of increasing the quality of differentiated curriculum for gifted students and the quality of instruction for gifted students in the regular classroom, increasing the numbers of identified students from traditionally underrepresented populations (minority and students from low-SES populations), increasing the awareness of secondary-level staff of the needs of gifted students especially in AP courses, and for upgrading skills of teachers who had been endorsed in gifted education prior to implementation of the staff development program.

The data analyzed for this article are derived from the first two courses in the sequence. The first course, Introduction to Gifted Education, includes cases relating to the nature of intelligence, giftedness, and gifted learners. While the general nature and needs of gifted learners (including special or underserved populations of gifted learners) and the appropriate education of gifted learners are addressed, the specific topics of curriculum for gifted learners, issues of excellence and equity, creative and critical thinking, grading, and characteristics of effective teachers of gifted learners are emphasized. The second course, Curriculum Differentiation, focuses on curricula and builds upon the introductory course by outlining ways in which appropriate curricula for the gifted are a response to the cognitive and affective needs unique to gifted learners as well as those characteristics they share with chronological-age peers. Modifications in the content, process, product, affect, and learning environment of classroom and curricula are examined as they relate to gifted learners. Course participants are

given direction in developing learning experiences that are concept based, open ended, and flexibly paced.

Setting

The school system participating in the staff development program is a large, urban system with 161 schools educating approximately 130,000 students, the majority of whom are minority students (42% African American, 14% Hispanic, 4% Asian). The southern state in which the teachers participating in the study taught has instituted state-mandated standardized testing for all public schools. Students at grade 3 take a pretest in the first 3 weeks of school. In grades 3–8, all students take end-of-grade tests in reading comprehension and math. Additionally, in grades 5 and 8, students must take an end-of-grade science test. In grades 4 and 7, students must take a one-prompt writing test scheduled in March. Passing these tests is required for promotion. In order to receive a high-school diploma, students are required to pass five end-of-course (EOC) assessments and successfully complete a graduation project. The five required EOC assessments are Algebra I, Biology, English I, Civics & Economics, and U.S. History. Students with qualifying disabilities and IEPs have alternate testing available.

This district provides for identified gifted students through a variety of service delivery models: (a) elementary magnet centers; (b) accelerated learning opportunities; (c) language immersion academies (all levels); (d) IB programming at all levels, including elementary preparatory; and (e) AP courses at high-school level. Students are generally identified after first grade, but identification procedures are administered annually. Each school has a gifted/talented coordinator available to assist in curriculum planning for individual students. Options at the high-school level include AP courses, the IB program, and honors level courses. Gifted students may be served in cluster group arrangements in the classroom, pull-out programs, or in full-time programs at the elementary level.

Methodology

The results presented here are derived from the findings of a larger, mixed-methods longitudinal study investigating the outcomes of the entire Project LOGgED ON program. The particular study presented is a qualitative study applying the principles of symbolic interactionist theory (Blumer, 1969) in studying the behaviors, actions, and interactions of the participants as they fulfill online course requirements through the use of threaded discussion boards. The dataset for this study was derived from 512 teachers' responses to the first two courses during the first 2 years of the project (48% high-school teachers, 23% middle-school teachers, and 29% elementary-school teachers). These teachers work at various schools within the urban school district described above.

Teacher responses to the coursework, including discussion board responses, an end-of-course survey, and e-mail correspondence were transcribed and transferred into NVivo (2001). A total of 323 documents was analyzed. Each document averaged 28 participant responses to discussion board prompts, resulting in approximately 9,044 responses that were read, coded, and sorted. The data were organized and systematically processed through the use of open coding, axial coding, and memo writing. Illustrative examples of the discussion board prompts are provided in Table 1.

TABLE 1
Example of Discussion Prompts

What types of giftedness exist?
How are student productivity and grades related to giftedness?
Should currently identified gifted learners undergo periodic reassessment?
What are some common characteristics of giftedness?
What does research suggest about grouping gifted learners in educational environments?
What types of learning outcomes are appropriate for gifted learners?
Is gifted education a right or a privilege?

The process of coding led to the discovery of several large, general categories (Strauss & Corbin, 1998). One of these, "policy," is the basis for the findings presented here. It is interesting to note that there was no discussion prompt related directly to policy but the category was created based on teacher responses across many prompts. For example, during the discussion responses to the prompt about grouping gifted students, one teacher commented, "Some schools are afraid to group gifted learners in educational environments in fear that they may miss necessary testing strategies." The discussion that followed his response led to further comments on how the NCLB and the standardized testing movement has led to a narrowing of the curriculum and a loss of control for teachers to do what is best for gifted students. All comments, such as these, were labeled under the term *policy*. These responses were then reread and further organized into the categories and properties described in the findings and outlined in Table 2.

The veracity of the analysis process was reviewed during the Project LOGgED ON biweekly staff meetings and refined with a peer-review team of project researchers over the 10-month period during which data analysis occurred following conclusion of the course instructional time frame. Coding, coding schemes, and coding categories were verified and refined during this process. Two veteran teachers currently employed in a southern public-school system conducted an audit of our preliminary analysis and conclusions. Their questions and feedback were used to refine data analysis and interpretation of findings.

FINDINGS

This study gives evidence for how school personnel react to a professional development campaign for gifted education in the midst of a national accountability agenda. The first

TABLE 2
Categories Created Under Policy

General coding category	*Subcategories coded under "Policy"*	*Resulting themes*
Policy	Mandated curriculum guides/rigid timelines	Paint-by-number teachers
	Narrowing the curriculum/ loss of creativity	
	Disempowerment/internal conflict	
	Fear of reprimand/teacher evaluations[a]	
	Student disengagement	Cookie-cutter students
	Teaching to lowest common denominator	
	Ceiling effect	
	Change in personal practice	Results of professional development

Note: [a]Merged into other categories at time of writing.

prevalent theme identified in this study focuses on the pressure for conformity and uniformity in curricular choice and instructional practice that accompany a high-stakes testing environment and standards movement.

Paint-by-Number Teachers: Conformity and Uniformity in Curriculum and Instruction

Indicators of conformity and uniformity that emerged from this study were mandated use of curriculum pacing guides and the imposition of rigid timelines in the use of those curriculum guides. Narrowing of the curriculum and disempowerment of teachers is also indicated.

Mandated Curriculum Guides and Rigid Timelines

NCLB requires states to create a set of curriculum standards for all subjects at all levels and demands that students be annually assessed on a standards-based test measuring the level of mastery of curriculum standards. Many school districts have created curriculum-pacing guides based on these curriculum standards—a step-by-step teaching manual. Such pacing guides were in use in the school system studied. One participant explained how the pacing guide works in her school district and its effect on the teachers' responsiveness to individual differences:

> Due to standardized testing across the system at the end of each quarter, a timeline has been designed. This "tells" the teacher what to teach each day and what must be addressed each quarter in order for students to be successful on the quarter tests. As a result, teachers teach the same "stuff" at the same rate to every student. (Teacher, high school)

This teacher's emphasis on the word *tells* expresses how the pacing guide is a dictum that prescribes what every teacher must teach each day, regardless of the makeup of the students in the classroom.

According to one middle-school teacher, teachers were assessed on their ability to stay on target with the pacing guide, often at the expense of the students' interests or learning potential.

> I have so many wonderful creative minds who grab onto something and want to see where they can take it, and I have to stop them midflight and drag them back to vocabulary or grammar, because if my principal walks in and we are not discussing the prescribed curriculum, I could lose my job. (Teacher, middle school)

Another teacher explained how the administration monitored her compliance:

> The standards-driven curricula have taken the majority of the freedom and creativity out of the learning environment at the public schools. For example, in my school we have (for classes with an EOC [end-of-course] test) a pacing guide that must be followed and we have to meet with our principal once a week to make sure that all of the other teachers are in the same place. (Teacher, high school)

These teachers give voice to the pressure to "keep pace" with other teachers and to "move on" regardless of student's needs or interests.

Narrowing the Curriculum

The enforced use of pacing guides for every subject in every grade leads to a narrowing of the curriculum for all students. This is of particular concern for teachers of gifted students who fear that their gifted students are missing out on important skill development. For instance, one teacher was instructed not to teach grammar:

> I can remember being told not to focus too much on grammar because it was not on the end-of-grade test. What about those students who are now preparing to take the SAT and apply for college without any grammar skills? (Teacher, high school)

Another teacher worried about the omission of higher-level thinking skills:

> So much time is spent teaching the standards driven curriculum . . . that little time is left to implement higher-level thinking activities. (Teacher, elementary school)

The emphasis on teaching discrete facts on specific topics concerned a teacher who wondered how much deep understanding of content was taking place:

> Clearly with our high stakes EOC's and pacing guides (so detailed that they provide activities and homework assignments) not only have we created classroom environments

> where no innovative teaching occurs, we have also limited in-depth learning and understanding for all students. (Teacher, elementary school)
>
> The system I teach in even has prescribed curriculum guidelines for what to teach on what day—hardly what I would consider a way of coming up with challenging and creative ideas for the gifted—on the whole it sounds rather Orwellian to me. (Teacher, high school)

Disempowerment/Internal Conflict

Many teachers expressed frustration at being limited by the pacing guides to teach in a manner that they judged to be not in the best interests of their students. They questioned the misalignment of these policies with the strategies they were learning in the professional development coursework but felt disempowered to do anything about it. This devaluing of teacher's professional judgment was articulated by three teachers who said:

> They [the pacing guides] limit the creativity of the students and the teachers. They seem to me to give the impression that teachers don't know what's best for their students and that neither the students nor the teachers can make good decisions about the education process. (Teacher, high school)
>
> The perception that what is being assessed is what is most important leads teachers to surrender their professional judgment about what is important, how content is taught and how mastery of the content is assessed. (Teacher, high school)
>
> Educators find themselves in a tug-of-war between what they know is right for the students and mandates made by these policies and EOG [end-of-grade] tests. (Teacher, elementary school)

The test scores appear to take precedence over everything else. The prevalent theme expressed by these teachers was that they were being forced to teach to the test and to raise test scores at all costs. For instance, one teacher explained:

> Standards driven curricula and testing are tearing apart our schools. Teachers blame each other for low scores. Principals blame teachers. Students have lost the excitement and interest they once had about learning. This is due, in part, to teachers not being able to teach innovatively, but to the tests. (Teacher, elementary school)

These teachers questioned their ability to teach using "best-practice" teaching strategies for gifted learners such as fostering higher-order thinking skills, teaching for deep understanding, and delivering content at a more challenging level. Many teachers verbalized their feelings of disempowerment and expressed worries about their job security. One teacher described her school district as a Leviathan:

> I also know that the district I'm in (I'm not sure if we're all from the same one) is very political and a huge Leviathan, and I do believe that those not falling strictly into line are made extremely uncomfortable. This past week I walked past a room where a new teacher to our school was saying that she might not teach the entire curriculum because educational research continues to indicate that depth is much more beneficial to breadth. The department chair she was talking to indicated that while she was probably okay in making that decision for a year, the district might decide that she would not be invited back next year. (Teacher, high school)

Teachers felt unable to be creative and use innovative practices in their teaching. This pressing concern for many of the study's participants is evidenced in the following statements:

> One of the reasons I went into teaching was my love for learning and children. The autonomy and ability to be creative were also big incentives. . . . I feel as if my day is scheduled out and what I am to be teaching and what style in which I do it is handed to me in an unchangeable format. I can understand how someone with a god-given gift to teach can decide that it is not for them. If the stress of testing can do that to a fully matured teacher who has had a life-long love for learning, the affects [*sic*] of it on a child are profound. Stress does not provide an environment where a child can grow to be a lover of learning. (Teacher, elementary school)
>
> Because of the state mandated tests, teachers have lost their yen to be creative. Most teachers have a personal sense of what makes a good teacher, yet, when pacing guides and course goals are hanging on the classroom walls, the TEST becomes the thing. There is little classroom time for experimentation, discussions, or divergence on the part of the teacher. (Teacher, middle school)
>
> Unfortunately, my control freak of a school district had to do away with that [differentiated lessons]. Now the Language Arts and Math teachers teach from Focus lessons, which are done for them by the school district and all they have to do is copy the lessons for the kids and do it with them. Robotics anyone? (Teacher, middle school)

As evidenced above, the current school context is not supportive of teachers using their creativity and their love of learning to instill an interest or passion for a subject in their students.

The teachers that have participated in this study worry about their students for they know all of their students are not the same. They each have different needs, styles, and rates of learning. Yet, how can paint-by-number teachers teach anything but cookie-cutter students?

Cookie-Cutter Students

The difference between a drop cookie and a cookie-cutter cookie is that every cookie-cutter cookie is the exact same size and shape. Are the pressures of the high-stakes testing environment, where the hope is that each student will attain the same high passing rate on the standardized tests as every other student, leading policy-makers to seek a common "recipe" for teaching to all? With what results?

Disengagement

The promotion of student disengagement and boredom is not the intent of accountability policy-makers. However, the teachers in this study reported seeing more and more cases of student disengagement in their schools. They expressed concern that the high-stakes testing environment may be a contributing factor in this trend. Several teachers attributed this to the current emphasis on skills, drills, and repetition of material:

> The teachers are constantly "teaching to the test" because of the accountability pressures brought on by administrators and/or the district. More emphasis is placed upon repetition, worksheets, and skill drills to meet the needs of the "at" or "below" grade-level students to obtain acceptable standardized test scores. (Teacher, elementary school)
>
> I think that standards-driven curriculum cheats students out of the true experience of learning. As a teacher, I have taught 6th, 7th and 8th Grade Language Arts. The current curriculum has teachers repeat the same information through the course of all 3 years. (Teacher, middle school)
>
> Standards driven curricula and high stakes testing has had a devastating effect on gifted students. The very repetition and basic skills learning that unmotivates a gifted learner is emphasized. (Teacher, high school)

The way that teachers interpret and emphasize the goals and objectives reflected in curriculum guides and the tests detract from interest in and engagement with the content being taught and devalues the importance of life-long learning, suggested one elementary teacher:

> Our system's objectives are organized into "goals," and some teachers even use these terms as they teach; ok, class, Lewis & Clark are in goal 2! BLAH! BORING! It's dreadful to clutter up and lessen the magnitude of the wonderfully interesting subject matter we all have to share because the test has become more important than the subjects we all are teaching. (Teacher, elementary school)

Another teacher postulated that students:

> [W]alk away from the school day thinking, "Today we focused on two objectives, both of which I already knew, and that's all there is to school." The curricula leaves little to no room for creativity, neither on the teacher's part nor on the students' part, which leaves both teacher and student feeling empty. Also, when we "teach to the test" (and the students know about it) we teach them that what they're learning has no lasting effect on their lives. Short-term memory gain takes the place of long-term memory learning. Instant gratification of a good test score has taken the place of instilling critical thinking skills, analyzation [*sic*], and application of information to real-life. (Teacher, elementary school)

It seems to be a particular concern that students who would typically be high achievers are especially prone to disengagement with school, as can be seen in the following examples:

> I know that in my classroom, if I do not challenge gifted students they become bored and tune out, doing poorer in school than they normally would. With all the curricula and high-stakes testing, there is more pressure on the teacher to teach that (since the majority of the school is not gifted) than challenge the gifted students, leaving them behind in some cases. (Teacher, high school)

So what does standardized testing do to gifted students? . . . it terrifies them, bores them and stifles their creativity. It does the same thing to the students as it does to the teachers. (Teacher, high school)

Teachers in this study devoted many discussion passages to this topic, detailing their concerns that the tests target the lowest achiever, leaving the top students to become disengaged and bored.

Lowest Common Denominator

"Teaching to the lowest common denominator" is a termed coined by many teachers to describe how they view the level of academic challenge standards provide. (Unfortunately, standards and the high-stakes testing have become one and the same in teachers' minds.) One teacher explained, "The approach that has been taken with these alignment guides is to teach down not up. By lowering the goals they hope to not leave any child behind at the sacrifice of high achievement." The tests and the standards do not align with the expectations previously in place. In the opinion of the teachers, the test requirements are not challenging, so if the test outcome expectations is the hallmark for teaching, the course becomes a very watered down version of what was once taught. A high-school teacher explained:

> Most state tests are written and designed so that all but the VERY lowest in ability levels can achieve passing results. A student can maintain a D average in my US History course all year and score in the 90th percentile on the state test with little or no effort. This is common knowledge among students, as is the fact that students of all ability levels take the same exact test at the end of the year.

Another teacher reported lowering her standards for instruction:

> I have also felt that I have been forced to lower my standards of education in order to incorporate a system that is looking at the lowest common denominator in all classrooms. As a result, we have students forced to work on skills that are below them resulting in student apathy and lack of improvement in higher-level thinking skills. (Teacher, high school)

According to these teachers, "lowering of the bar" and spending so much time on repetitive skills, drills, and test-taking strategies has taken instructional time away from other instructional practices and higher-level curriculum. They perceive that this has had a deleterious effect on the daily practices of teaching gifted students, perhaps resulting in a ceiling effect. Regrettably, the potential positive effects of setting high standards in the curriculum are undermined by the testing process and the interpretations of teachers of standards in the context of testing.

Ceiling Effect

Is there a ceiling on how much a student can learn or expect to be taught? Many teachers' reflections in this study addressed this question. Teachers expressed concern that gifted students are not allowed to achieve to their highest levels. The discussions led one teacher to say, "The gifted population tends to be overlooked due to the emphasis on state testing." Another study participant concurred: "Gifted learners certainly are the individuals MOST disadvantaged by the implementation of high-stakes testing." Furthermore, one teacher did not mince words when she stated, "We are creating a very hostile environment for the gifted."

These teachers expressed unease because they were not allowed to teach in ways they felt would meet the needs of the gifted; they indicated much of the time gifted students spend in school is not conducive to developing their talents or potential, and they lamented the disproportionate amount of school resources being spent on teaching to students who are below grade level.

The following statements reflect frustrations on the lack of time being spent on the development of the gifted student's potential:

> Teachers are spending so much of their time preparing students for the test, that their [gifted students'] true talents are being overlooked. (Teacher, elementary school)
>
> In the push to cover all the material on the test, teachers often times leave out the most interesting topics related to the course. If a gifted student shows an interest in an area not stressed on the "test" there is little time for any enrichment! (Teacher, high school)
>
> The time that they [gifted students] spend preparing for standardized tests is time in which they could be learning new material, developing their talent, and motivating themselves to learn. Gifted students do not deserve the burden of carrying their schools. They deserve a year's worth of growth instead of the possibility of underdeveloped potential. (Teacher, high school)

It appears to be a common practice to focus more time and attention on meeting the needs of low achievers as can be seen by the following assertions:

> It seems we are always concerned with raising the scores of lower-level students, but rarely are we encouraged to challenge and raise the scores of our G/T students. Over time it's these students who are under challenged! (Teacher, middle school)
>
> It is truly a sad state of affairs when the emphasis is on raising the test scores of a level 1 student and not concentrating on the growth of the level 4 student, but with our high-stakes testing system, the level 1 student has a lot further to go than the level 4 student. Also, the No Child Left Behind focus of students being on grade level puts an even greater pressure on schools to raise the scores of the below grade-level child. (Teacher, high school)

One high-school teacher asked what these practices may mean for the future, "It is almost more frightening to wonder what the long-term implications (10, 20, and 30 years down the road) might be for gifted students whose learning is taken away by high-stakes testing."

The idea that the current policy of accountability is taking something away from gifted learners is echoed by the following opinions:

> I think that the standards-driven curricula have pushed programs for gifted learners to the side, at least in the middle-school arena. A good example is a workshop that I attended last year given by the College Board. They were piloting a program for middle-school students, which was to prepare students to take AP level courses in high school. . . . Finally, after a few days, an assistant superintendent visited the workshop to see how things were going and touted the program as a step in accelerating our students. However, once the administrator discovered that this program could not easily be molded into the standards-driven curricula, she changed her tune. Suddenly the program was not going to work so well. We were told that if we taught at an Equity Plus school, we could not deviate from the pacing guide, thus eliminating the ability to implement the College Board material. (Teacher, high school)
>
> Knowledge acquired development of higher-order thinking skills (Bloom) such as synthesis and analysis, use of creativity and imagination and inquiry skills as well as love of and passion for learning are just not part of the local equation. Test results are THE EQUATION. (Teacher, elementary school)

In conclusion, the teachers in this study see signs of boredom and disengagement in their students and find themselves under pressure to teach to the lowest achievers, which may be placing a ceiling on the potential learning of high achievers.

PROFESSIONAL DEVELOPMENT IN GIFTED EDUCATION

The professional development findings from this study have been determined not on the number of successful completers

and not on the teacher's level of satisfaction with their professional development experience but from their expressed intentions for applying the knowledge they have gained to their classrooms. Teachers who successfully completed the courses demonstrated knowledge of the characteristics of the gifted learner and an understanding of the best practices for teaching these students; yet the results are actually quite grim, for the participants do not feel able to use their newly acquired information within the current educational context in which they teach.

There were only three instances of teachers trying to reconcile their new learning with the current standards reform policy. One declares, "Educators must hold strong in what they know to be effective strategies in working with gifted children!" Another suggests, "Perhaps if enough teachers and parents question the validity of teaching to the state test, positive changes could occur."

However, by and large, most feel disempowered to take on this task. Over and over, teachers talked about the barriers they faced. A teacher laments for all, "In theory I agree with what you are saying. However, where can you find a school district that allows teachers that much freedom? It sounds like a Utopia. In my school district we are very restricted." Another teacher's comment typifies this prevalent feeling, "Unfortunately, as most educators know, this is an ideal that would be very difficult to put into practice due to the bureaucracy."

There is a general feeling throughout all of the discussions of the teachers "holding back" despite their expressed desire to embrace the new ideas, concepts, and strategies, for their new learning is measured against the practicality of trying to apply the teaching models and strategies to the current educational context.

CONCLUSION AND DISCUSSION

One of the intentions of this study was to determine the effects of a high-stakes testing environment on a professional development initiative based on current knowledge of effective pedagogy in services provided to gifted students. The results suggest the accountability movement in the schools with its affiliation with high-stakes testing has created a barrier for practice and development of best-practice teaching and learning for gifted students. As other studies have noted, the powerful accountability movement is counter to best practice in meeting the needs of some students. In this case, the strong test-driven/standards-based curricular emphasis in the schools served to counter the effects of staff development in changing teacher behavior to meet the needs of gifted students.

Despite the evidence presented here, we must be cautious in overextending our conclusions, remembering that a qualitative study cannot be generalized. The results presented here are based on a qualitative study of teacher reactions during two professional development courses in one school system and must, therefore, be considered reflective of their experiences only, and the long-term effects of the accountability movement have yet to be determined. However, evidence from this study illuminates a disconnect between policies. It further illustrates the way a high-stakes testing environment can undermine the intent of standards setting with intentions of aligning outcomes with student needs.

What are the effects on teachers enrolled in this professional development? On the one hand, teachers can learn best practice in teaching gifted students (e.g., providing advanced, complex, and in-depth curriculum; adjusting pace of learning to student readiness to learn; engaging students in authentic problem-solving of real-life problems; etc.). They were able to speak knowledgably on the characteristics and needs of the gifted, as well as the best-practice pedagogy for instructing them. Yet, in environments where policies demand that teachers place priorities on raising test scores through strict district guidelines, teachers find themselves in cognitive conflict when they are unable to apply their new learning.

Participants in this study expressed a common feeling that their professional knowledge was not valued. The current reform movement, which combines high-stakes testing and standards-based accountability systems, is at odds in their minds and practice with the current research in the area of gifted education. The result is teacher perception of the tenets of accountability reforms as taking away from their ability to "do the right thing" by gifted students. Further, they perceive that implementation of these tenets, in the strictest fashion, results in gifted students wasting much of their time in school. Further, data in this study suggest that the resulting effects of disengagement and teaching to the lowest level of the lowest achievers have led to a ceiling effect in learning for high-achieving students. Teachers recognize this travesty but feel themselves disempowered and constrained to teach within the strictures of pacing guides and rigid timelines.

The final research questions ask: What are the outcomes when a school district attempts reforms in gifted education and standards simultaneously? How is support for this program perceived relative to other reformer prerogatives? The demands on school administrators to improve test scores result in policies that seem to overshadow the improvement of services to the gifted via a professional development program. In their quest for high test scores, leaders at the school district and school-building level use coercive tactics that are counterproductive to the daily practices of teaching gifted students and result in professional development in gifted education becoming a Utopian dream rather than an applied reality.

According to many participants in this study, administrators use bullying, threats, and coercive tactics to influence the achievement of higher test scores. Top-down mandates; forced use of curriculum guides that dictate what, when, and

how curriculum should be taught; and strict teacher appraisal systems are examples of this perceived coercion. The term *curriculum guide* appears to be a misnomer. For, according to this study's participants, instead of being a helpful resource, the curriculum guide is a whip cracked at the expense of the teacher's professional judgment and the students' needs. The teachers' perceptions are that the effects of the staff development learning become negligible as the countermessages of conformity of curricula and instruction take precedence. Unable to meet the individual needs of their diverse student populations, they have become unwilling paint-by-number teachers teaching cookie-cutter students.

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