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Highly Consequential Statewide Testing: Some of the Impacts of a Narrowed Curriculum Resulting from High-Stakes Tests*

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WORKING DRAFT: PLEASE DO NOT CITE OR QUOTE

*This paper was prepared in response to Washington State Board of Education members' questions about the impacts from a narrowed curriculum that can result from statewide tests that are highly consequential for students, educators, and other stakeholders. In November and December 2017, the author completed three separate, but related, memos (Parts A, B, and C) for board members on the topic and combined the memos into this working paper. I am grateful to the board members who provided valuable feedback after reading the separate papers. However, errors and omissions are the responsibility of the author. Please contact Andrew J. Parr at andrew.parr@k12.wa.us if you have questions or comments regarding this paper.

Summary

Three separate but related papers on the impacts from a narrowed curriculum that can result from statewide tests that are highly consequential for students, educators, and other stakeholders are compiled into this working paper for the Washington State Board of Education.

The embracing of standards based accountability contributed to educators changing their practice in different ways for the purpose of enhancing student achievement. Some educators responded to standards based accountability by finding ways in which to expand the curriculum and integrate different subject matter into their delivered curriculum. And, others found ways to provide more student-centered and personalized learning opportunities for their students. These changes in practice would be expected to bolster student learning.

When standards based assessments are highly consequential for teachers and administrators, the pressure induced by the tests sometimes results in cheating by some teachers and administrators, teachers engaging in vast amounts of test preparation with their students, and educators not providing some students with the opportunity to test. Some of these responses to the pressures of high stakes testing are unlawful, while others are immoral or at least questionable.

The most common manner in which to address the pressure to obtain higher test scores from students is by curriculum narrowing. Curriculum narrowing is sometimes perceived to be a reasonable reaction to the pressures of highly consequential testing. However, the delivery of a narrowed curriculum has not been shown to increase student achievement and disproportionately impacts students of color and students from low income households. When schools narrow the curriculum to gain a few points on a test, the students are deprived of a richer future and the achievement gap is perpetuated.

Next Steps

In response to this work, the author has been requested to conduct additional research and analyses that describe and inform the following questions.

- Has the curriculum narrowed in Washington since the implementation of the Common Core-aligned Washington State Learning Standards?
- Has the delivered curriculum changed in Washington after the implementation of the Smarter Balanced Assessment system and the Next Generation Science Assessment?
- Has (or will) the delivered curriculum in Washington change under the Every Student Succeeds Act (ESSA) accountability system?
- In Washington, what are the best practices used to counter the negative effects of curriculum narrowing and bolster the achievement of students?

WORKING DRAFT: PLEASE DO NOT CITE OR QUOTE

RESEARCH BRIEF – PART A

The Impacts of Curriculum Narrowing that Result from Statewide Testing

My Personal Experience of the Impacts of Curriculum Narrowing

Luisa was like so many of the 8th grade science students I taught in the early 2000's. She was a student of color whose parents worked multiple jobs living paycheck to paycheck in substandard housing in a poor part of town. Luisa and many of her classmates attended Title I elementary schools that had been identified as being in need of improvement under the No Child Left Behind Act and was now attending a Title I middle school identified as in need of improvement. Also like most of her classmates, Luisa was reading at a fifth grade level and doing math at a fourth grade level. So for years, Luisa had been receiving a daily instruction in reading and math from her regular classroom teacher and additional instruction in each from a content expert or instructional coach, a practice teachers refer to as 'double-dosing'. And yet, Luisa and many classmates were still three to four grade levels behind in the skills they would be assessed on in the spring.

As a science teacher, my beginning of the year professional development consisted of two days of learning the reading, writing, and math instructional strategies that were to be implemented schoolwide to bolster the skills of students not meeting the learning standards. Every science lesson I was to deliver must incorporate at least one ELA and math standard, in addition to the targeted science standard. I did this willingly, as I understood the importance of learning about science and having the skills to compute and communicate about the science outcomes. However, I was disturbed that approximately one-half of my science instructional period was devoted to reading, writing, and math content. More importantly, my students voiced their displeasure in receiving yet more reading and math instruction when they wanted to be learning science.

Students at my school looked forward to participating in the annual school science fair because the event was an opportunity to investigate a topic of personal interest to each student more deeply. The science fair provided me with yet another opportunity to evaluate the higher order thinking skills of my students as they sequentially worked through the scientific process. Every year, the shockingly low level of higher order thinking skills unfolded before my eyes through the science fair process. More often than not, students proposed to reproduce science demonstrations they witnessed in the third or fourth grade. I rapidly learned that my students' skills and higher order thinking ability was three to four grade levels behind what was considered normal for eighth graders. Luisa wanted to make a paper mache'

volcano and mix baking soda with vinegar to simulate a volcanic eruption; a demonstration she saw in the third grade and nowhere near the level of work expected of a typical eight grader. My heart broke.

This was my introduction to the impacts of a narrowed curriculum and what has come to be referred to as the "dumbed down" curriculum (Iserbyt, 1999). As awful as a dumbed down and narrowed curriculum are, the thought of such a curriculum becomes even worse when you consider the fact that these unintended behaviors emanating from statewide testing disproportionately impact students of color and students from low income households. These inappropriate reactions to statewide testing by educators help to perpetuate the achievement gaps that are so prevalent all across the county.

Educator Reactions to Statewide Assessments

David Berliner (2011) contends that, in high stakes environments, individuals behave in accordance with Campbell's law (Campbell, 1975). Campbell's law states that when a social indicator takes on too much value (such as a test score or school rating), both the indicator and the people who work with that indicator become corrupted. In high pressure situations people frequently do whatever they deem necessary to achieve their goals and keep their jobs or status. That is, the value placed on the indicator thought to be a measure of a person or a system's performance corrupts individuals, and the indicator itself may quickly become invalid.

By mandating statewide testing and attaching serious consequences, the validity of the instrument (assessment) or indicator (assessment results or school rating) can quickly be compromised by unintended and undesired practices. When tests of student achievement are highly consequential for teachers and administrators, the pressure induced by the tests sometimes results in the following.

- Cheating by some teachers and administrators, or more frequently, the breaking of standardization procedures associated with the tests. These quite common acts destroy the validity of the tests, rendering them useless for the interpretations that are desired of them.
- The pressure of the testing also results in teachers engaging in vast amounts of test preparation with their students, some of which also causes the validity of high stakes testing to be rendered problematical.
- In addition, teachers and administrators have been known to move low performing students out of their classes and schools, or mistreat them in some manner hoping they will drop out, or they hold them back thinking they might have a better chance to meet standard on the tests.

While some of the above cited responses to the pressures of high stakes testing are unlawful, the others are immoral or at least questionable. Another troubling way to accommodate to the pressures to obtain ever higher test scores from students is by curriculum narrowing (Baker et. al., 2010).

The Narrowed Curriculum that Results from Statewide Assessments

According to a King & Zucker (2008), curriculum narrowing occurs when the core academic subjects of reading and mathematics are given priority over other subjects in the curriculum, including science, social studies, physical education, foreign languages, and the arts. Curriculum narrowing includes the following.

- Teachers exclude from their lesson plans the material that is not tested in an attempt to maximize the learning opportunity for students on the content of the test. This change is seen as a nearly unavoidable reaction to the pressure on teachers from district and state educational leaders to raise test scores.
- The instructional portion of the curriculum in the classroom has been further impacted by teachers who prepare their students for the consequential statewide assessments by focusing on test-taking skills and memorizing strategies rather than delivering an intellectually challenging curriculum.

So, curriculum narrowing takes two basic forms, reducing the time spend on non-tested content areas and reducing the rigor or higher order thinking requirements within the content being taught. Although an apparently widespread and unintended practice, narrowing the curriculum has been found to be one of the least effective ways to improving test scores (Baker et. al., 2010; National Board on Educational Testing and Public Policy, 2003).

Narrowing the curriculum has been found to be one of the least effective ways to improve test scores.

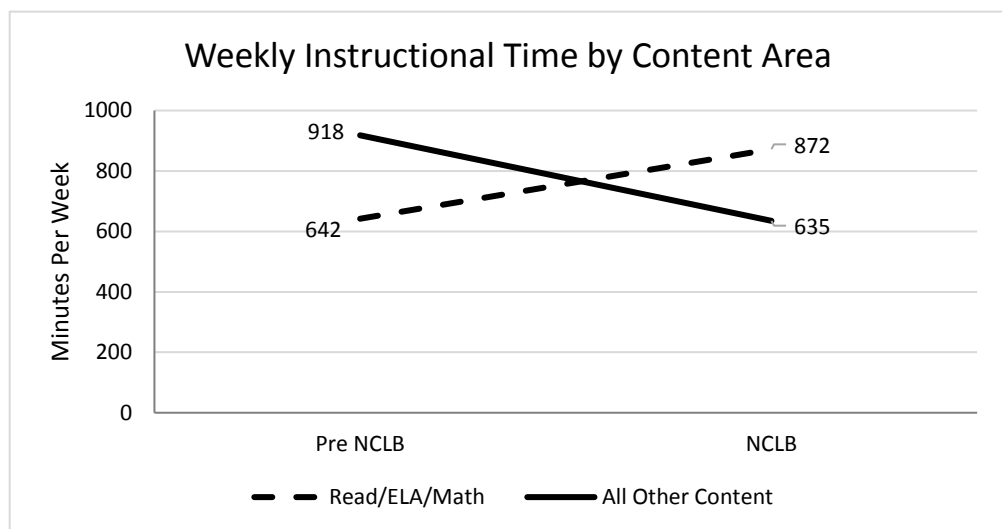
The idea of increasing instructional time in order to increase student achievement has long been a focus of educational research. Findings mostly support the notion that differences in instructional time are related to the amount of curriculum teachers cover and the likelihood of engaging their students in appropriately challenging material, both of which have been linked to student achievement (Morton & Dalton, 2007). In other words, higher levels of achievement would be expected if students were to receive more minutes of high quality instruction using challenging materials. As a result, one would anticipate that instructional minutes would be increased in the content areas deemed to be the most important or the most consequential for students, educators, or schools. The highly consequential No Child Left Behind (NCLB) Act required annual statewide assessment in reading/ELA and mathematics in grades three to eight and one in high school. Table 1 is provided to highlight the following.

- Prior to NCLB, the average weekly minutes of instruction for other content areas (science, social studies, arts, etc.) exceeded the instructional minutes for reading/ELA and math.
- After six years of NCLB accountability implementation, the average weekly minutes of instruction for reading/ELA and math far exceeded the instructional minutes for other subjects.
- The curriculum narrowing described above is graphically illustrated in Figure 2.

Figure 1: Shows how the weekly instructional minutes for various content areas changed after the implementation of the No Child Left Behind Act (Modified from Berliner, 2011).

Content Area	Pre NCLB 2001-02	NCLB 2007-08	Minutes of Weekly Instruction (Increase or Decrease)	Percent Change from 2002 to 2008
Read/ELA	378	520	142	38
Math	264	352	88	33
Subtotal (Read/ELA/Math)	642	872	230	35
Social Studies	239	164	-75	-31
Science	226	152	-74	-33
PE	115	75	-40	-35
Recess	184	144	-40	-22
Art/Music	154	100	-54	-35
Subtotal (Other)	918	635	-283	31

Figure 2: Shows how the weekly instructional minutes for various content areas changed as a result of the implementation of the No Child Left Behind Act.



What is Lost and What is Gained by a Narrowed Curriculum?

Curriculum narrowing has been shown to result in limited and small increased outcomes under the following circumstances.

- Curriculum narrowing most often leads to drill and practice on facts prior to testing. This produces a tenuous kind of knowledge that may lead to small increases in outcomes but the apparent learning fades quickly after testing and is unlikely to transfer to any other knowledge domains.
- Students who experience a narrowed curriculum in the early grades may perform better in the primary grades but are more likely to perform poorly on standardized reading/ELA and math tests later. This because in the upper grades such assessments place more emphasis on comprehension and reasoning and less emphasis on simple decoding and algorithms.

Curriculum narrowing is defined by increased instructional time for some subjects at the expense of other content areas. This shift in instructional focus has negative impacts on students of all ages.

- Science instruction ensures America's economic competitiveness in the twenty-first century. Reduced instructional time in science renders youth ill-prepared for the nation's science- and technology-rich future.
- For many decades and even centuries, social studies (civics, history, law and related studies) have been deliberately designed to be a part of youth development. Reduction in this curriculum area lowers responsible citizenship, and youths' ability to fully comprehend the need to participate in democracy and citizen involvement.
- If a positive correlation between physical activity and student physical well-being and cognition exists (which it probably does), it should be a concern that physical education courses have declined over the previous 20 years and that far too many children and adolescents are sedentary, overweight, and show early signs of Type 2 diabetes. Physical education is an important way to keep medical costs down, and an activity that parents and physicians want to see promoted in the schools, not sacrificed.
- The performing and visual arts are alternative ways to express ideas that are not presented in the verbal or mathematical symbol systems that are used daily. By cutting the arts, children and adolescents are limited in the ways they can represent the world in which they live. A reduction in curricula for learning and developing the arts restricts our students' ways of thinking and limits creativity.

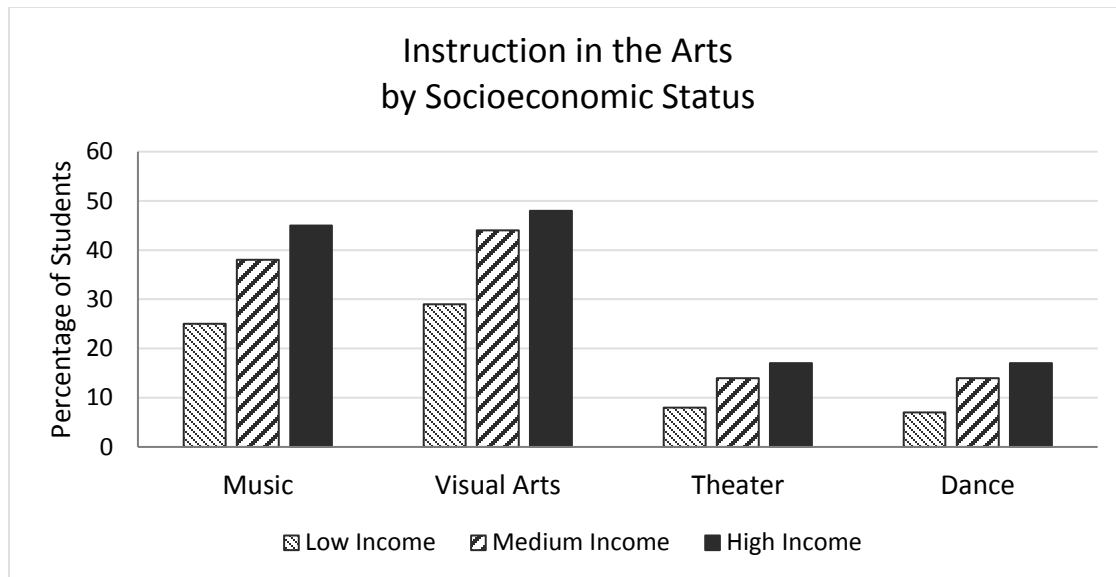
How a Narrow Curriculum Contributes to the Achievement Gap

Curriculum narrowing undertaken to improve the test scores of poor and minority students may actually magnify the achievement gaps between the low income and their middle and upper class peers. The term "apartheid education" is used by David Berliner to describe the phenomena whereby the more affluent students are delivered a richer and more intellectually challenging curriculum than that received by children from low income households. A study of the Chicago public schools reported that that low SES minority children, in particular, were required to focus on the memorization of fragmented facts and information, and they were constantly taught simple test-taking techniques while more affluent students were exposed to curriculum leading to the acquisition of higher-order thinking, writing and problem-solving skills (Baker et. al., 2010; Berliner, 2011). In the Chicago public school system, the curriculum required of schools identified as in need of improvement was distinctly different from the curriculum provided to schools not identified as in need of improvement.

An example of the "apartheid curriculum" used by David Berliner is depicted in Figure 3. In a study of California students, Woodworth and others (2007) show that significantly higher percentages of

students from wealthy households receive instruction in the arts in their public school as compared to students from low income households. Students from low income households at high poverty schools are delivered a narrowed curriculum while students from affluent households in low poverty schools are provided a broad and rich curriculum that routinely include the arts, a curriculum that has a greater likelihood of contributing to postsecondary opportunities and success.

Figure 3: shows the percentage of California students receiving instruction in the arts by socioeconomic status (Modified from Woodworth, Gallagher, & Guha, 2007).



Non-minority and middle to upper class students who possess the social capital valued by schools are more likely to go to college and more likely to attain higher status through higher paying jobs. Low income and minority students are less likely go to college and land in lower-skilled and lower-paying jobs. The decisions about curriculum and instruction in districts or schools that are identified for improvement, result in access to a rigorous curriculum for some, but not for others.

The disparate access to rigorous and challenging curriculum allows for the continuation of the unequal social structures that are evident across the country.

Students from affluent and even middle class households have access to museums, go on family vacations, attend more cultural events in their community, and are exposed to a much more expansive vocabulary. These lucky children pick up peripheral, incidental, but potentially essential knowledge, even when their schools to do a poor job of teaching about the natural world, art, music, history, geography and science. For many minority children and those from low income households, it is only the schools that provide access to the background knowledge so essential to comprehending the world in which we live. When schools narrow the curriculum to gain a few points on a test, the school should be viewed as cheating their students, especially those from low income households, of a richer future.

How a Narrow Curriculum Impacts other Educational and Postsecondary Outcomes?

A narrowed curriculum that focuses on reading/ELA and math reduces student engagement in their learning. The benefits of a broad multi-disciplinary curriculum has the following benefits.

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- Making non-core curriculum classes available for all students enhances student engagement and inspires original and independent thinking, which are essential for thriving in core curriculum classes.
 - Non-core classes contributes to students' abilities to compete in an increasingly global society.
 - Non-core curriculum is the catalyst that initiates the thought process that fosters confidence and competitive skill sets.
 - Non-core curriculum supports the ability to make connections to core curriculum that personalizes learning, brings about personal connections, and evokes emotional responses.
 - Non-core curriculum are essential for developing the 'whole person'.

Curriculum that focuses on students meeting the standard on a standardized test does not indicate readiness for postsecondary options and may actually reduce the likelihood of a student being college and career ready. According to Reid (2012), many secondary and postsecondary educators agree on the following.

- Students are not prepared for college upon graduation from high school. Educators agree that more needs to be done to help students develop their academic skills versus helping students to memorize facts.
- Preparation for standardized tests does not guarantee that students will develop their academic skills or provide the relational support needed to be successful in college.
- Most agree that standardized tests do not require the analytical skill that college entrance exams require to demonstrate mastery of academic skill sets.
- Narrowing curriculum practices do not allow a student to explore interests outside of the core curriculum. Many scholarships are tied to the non-core curriculum such as the fine and performing arts, and therefore many students would not have exposure to these scholarship types due to narrowing curriculum practices.

Educators largely agree that they are responsible for assisting students in developing a personal career path and educating students toward their interests. Education is a child's opportunity towards exposure to world and career concepts. Especially for students from a low income family, educators must expose students to career paths that they may not have considered (Reid, 2012).

Many educators believe that lack of students' interest in coursework could be the result of failure to provide career pathway options. Student interest can be bolstered when educators seek to learn the interests of students and structure their learning around these interests. Such actions result would accomplish the following.

- Increase self-motivation of the student to learn.
- Result in knowledge transfer, whereby students would find ways to incorporate the core curriculum concepts in their non-core curriculum interests.

Knowledge transfer and application of core curriculum concepts help the student to understand why it is necessary for them to learn particular concepts and aid in retention of these concepts because students feel they are able use this information to solidify their interests in other areas (Reid, 2012).

Many educators assert that Career and Technical Education (CTE) should be an integral part of a broad and rich curriculum in public schools because these programs prepare a student to be career and college ready. Not all children are prepared or have interest in attending college and therefore should be exposed to career pathways that do not require college degrees. Public schools must invest in CTE programs for students who are not interested in attending college. Many educators contend that eliminating or even reducing CTE programs may directly or indirectly result in higher dropout rates,

lower graduation rates, lowered college matriculation rates, higher unemployment rates among young adults, higher welfare costs, higher crime rates, and lowered tax revenues (Reid, 2012).

Other Anecdotal Comments from Educational Leaders on Curriculum Narrowing

Two of the nation's most vocal school critics, Chester Finn and Diane Ravitch (2007), view narrowing of the curriculum as a serious problem in our public schools. They changed their position of support for the pursuit of school reform through consequential testing programs such as NCLB. Their new views include the following.

The liberal arts make us 'competitive' in the ways that matter most. They make us wise, thoughtful and appropriately humble. They help our human potential to bloom. And they are the foundation for a democratic civic polity, where each of us bears equal rights and responsibilities.

History and literature also impart to their students healthy skepticism and doubt, the ability to question, to ask both 'why?' and 'why not?' and, perhaps most important, readiness to challenge authority, push back against conventional wisdom, and make one's own way despite pressure to conform.

We're already at risk of turning US schools into test-prepping skill factories where nothing matters except exam scores on basic subjects. That's not what America needs nor is it a sufficient conception of educational accountability. We need schools that prepare our children to excel and compete not only in the global workforce but also as full participants in our society, our culture, our polity, and our economy.

Abandoning the liberal arts... also risks widening social divides and deepening domestic inequities. The well-to-do who understand the value of liberal learning may be the only ones able to purchase it for their children. Top private schools and a few suburban systems will stick with education broadly defined, as will elite colleges. Rich kids will study philosophy and art, music and history, while their poor peers fill in bubbles on test sheets. The lucky few will spawn the next generation of tycoons, political leaders, inventors, authors, artists, and entrepreneurs. The less lucky masses will see narrower opportunities. Some will find no opportunities at all, which frustration will tempt them to prey upon the fortunate, who in turn will retreat into gated communities, exclusive clubs, and private this-and-that's, thereby widening domestic rifts and worsening our prospects for social cohesion and civility.

Concluding Comments

Curriculum narrowing is an undesirable, but the most rational, of the many responses that occur to in response to highly consequential statewide testing. While the curriculum narrowing and accompanying test preparation are likely to result in slightly higher scores on the tests in the early years, the higher test scores are not maintained and there are many negative side effects of this response. A great deal of time for learning is added to those subjects that are tested, and a great deal of time is subtracted from those subjects not tested. In addition, many of the instructional activities focus on the memorization and practice of algorithms predominates.

Demands for higher cognitive processes, higher order thinking skills, are not taught frequently enough in schools that are identified as in need of improvement. Limiting the curriculum to be learned and the cognitions used to think about subject matter restricts the growth of our students' understanding as they progress through school.

References Cited

- Baker, E., Barton, P., Darling-Hammond, L., Haertel, E., Ladd, H., Linn, R., Ravitch, D., Rothstein, R., Shavelson, R., & Shepard, L. (2010). Problems with the Use of Student Test Scores to Evaluate Teachers. Education Policy Institute, EPI Briefing Paper 278, 29p. Retrieved on November 21, 2017 from www.epi.org/publication/bp278.
- Berliner, D. (2011). Rational responses to high stakes testing: The case of curriculum narrowing and the harm that follows. *Cambridge Journal of Education*, Vol. 41, No. 3, September 2011, 287–302. Retrieved on November 17, 2017 from https://www.researchgate.net/profile/David_Berliner2/publication/233458277.
- Campbell, D. (1975). Assessing the impact of planned social change. In G. Lyons (Ed.), *Social research and public policies: The Dartmouth/OECD Conference* (pp. 3–45). Hanover, NH: Dartmouth College, The Public Affairs Center.
- Finn, C. & Ravitch, D. (2007). Not by geeks alone. *The Education Gadfly*, 7, 30. Retrieved November 17, 2017, from <http://www.edexcellence.net>.
- Iserbyt, C. (1999). *The Deliberate Dumbing Down of America*. 462p. Retrieved in June 2005 from <http://deliberatedumbingdown.com>.
- King, K. & Zucker, S. (2008). Curriculum Narrowing. Pearson Policy Report, 11p. Retrieved on November 17, 2017 from <http://images.pearsonassessments.com>.
- Morton, B. & Dalton, B. (2007). Changes in Instructional Hours in Four Subjects by Public School Teachers of Grades 1 Through 4. National Center for Educational Statistics, Stats in Brief, May 2007, 9p. Retrieved November 21, 2017 from <https://eric.ed.gov>.
- National Board on Educational Testing and Public Policy. (2003). *Perceived effects of state-mandated testing programs on teaching and learning: Findings from a national survey of teachers*. Chestnut Hill, MA: Boston College. Retrieved from www.bc.edu/research on November 17, 2017.
- Reid, N. (2012). The Unintended Consequences of Narrowing Secondary Curriculum in Response to Low Standardized Test Scores. Ph.D. Dissertation, ProQuest LLC, Ann Arbor: Michigan, 197p. Retrieved on November 21, 2017 from <https://search.proquest.com>.
- Woodworth, K., Gallagher, H., & Guha, R. (2007). An unfinished canvas. Arts education in California: Taking stock of policies and practices. Summary Report. Menlo Park, CA: SRI International. Retrieved November 17, 2017 from <http://policyweb.sri.com/cep/publications>.

RESEARCH BRIEF – PART B

Standardized Assessments: Impacts on Curriculum, Learning, and Pedagogy

Although some form of test-based accountability had been in effect for decades, there was a major shift in the types of tests called for in the 1990s. States shifted from standardized, norm-referenced, off-the-shelf tests to customized, standards-based, assessments based on academic learning standards adopted by individual states. The shift in assessments ushered in a new wave of high-stakes, standards based accountability that has brought about many changes to education. The implementation of highly consequential statewide assessments inadvertently encourages curricular alignment to the tests themselves, better known as “teaching to the test.” Educators most often negotiate the highly consequential testing educational environment by narrowing curricular content to those subjects tested, promoting the increased fragmentation of knowledge forms into bits and pieces learned, and utilize more lecture-based, teacher-centered pedagogies.

In addition to this “teaching to the test”, the structure of the knowledge and the pedagogies utilized in the classroom are modified to conform to the testing. Content is increasingly taught in isolation and is often learned only within the context of the tests themselves. This knowledge fragmentation manifests in the teaching of content in small, single item, isolated, test-size pieces of knowledge framed in the test and anticipated test questions, rather than in relation to other subject matter knowledge. In association with both content contraction and the fragmentation of knowledge, pedagogy is also implicated, as teachers increasingly turn to teacher-centered instruction associated with lecturing and the direct instruction of test-related facts to cover the breadth of test-required information (Au, 2007).

Summary of Findings

Narrowing of the curriculum is largely believed to result from the implementation of highly consequential testing and the embracing of standards-based accountability.

Higher academic standards and more rigorous tests can lead to higher levels of learning and increase postsecondary success, but may lower the graduation rate.

Linking statewide testing to incentives and consequences for students can motivate students to perform well on standardized tests.

The next generation assessments will likely lead to students learning a greater amount of higher order thinking skills but are not likely to eliminate all of the negative impacts of curriculum narrowing.

Part I: Curriculum Narrowing

Observations and Teacher Perceptions

For decades, the nation has been implementing local, state, and federal standards and assessment policies in an attempt to hold schools, districts, and states more accountable for student performance. It is important to know more about the manner in which the reforms impact the content of what students are taught. A national survey (Farkas Duffett Research Group [FDRG], 2012) asked teachers to provide detailed reporting on what they see happening in their classrooms and schools: How are they spending class time? How does state testing affect what they do? Which subjects get more attention and which get less? When all surveyed teachers are collectively considered:

- 51 percent believe that less instructional time and resources are spent on art.
- 48 percent believe that less instructional time and resources are spent on music.
- 40 percent believe that less instructional time and resources are spent on foreign language instruction.

FDRG (2012) asserts that curriculum narrowing runs counter to the sensibilities of teachers, who hold a broad definition of what a good education means. Approximately 83 percent of teachers say that “even when students are struggling, electives are necessary, as the electives give students something to look forward to and are essential to a well-rounded education.” Only 12 percent of teachers say that when students are struggling “electives may need to take a backseat.” Yet, about one-half of elementary school teachers report that when struggling students require extra help in math or language arts, the struggling students are pulled out of other classes; the most likely subjects are social studies and science (FDRG, 2012).

Approximately 81 percent of elementary school teachers believe that non-core subjects get crowded out because of spending more time on ELA and math. Also, that 71 percent of those believe that the curriculum narrowing has been ongoing for at least several years (FDRG, 2012). Elementary school teachers devoted more instructional time to English and math and less time to social studies in 2004 than they had in 1988 (Table 1). If it is assumed that time spent on a subject is an accurate measure of how much it is taught, the narrowing of the curriculum is evident in elementary schools (Levine, Lopez, and Marcelo, 2008).

Table 1: shows the average hours per week of instructional time spent on various content areas.

School Year	Average Hours per Week of Instructional Time for Elementary School (1-5)				
	English	Math	Science	Social Studies	Total
1988	11.00	4.78	1.96	2.10	17.88
1991	11.14	4.82	2.14	2.38	18.34
1994	11.56	5.30	2.40	2.50	19.36
2000	11.94	5.62	2.08	2.40	19.96
2004	12.32	5.08	1.76	1.92	19.32

Source: Levine, et. al. (2008), derived from U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, NAEP Long-Term Trend Surveys.

Elementary school teachers continue to provide opportunities to learn about a wide range of subjects outside of the core academic subjects (Table 2). However, it might be assumed that the instructional time is reduced for the special classes as instructional time has been added to ELA and math.

Table 2: shows the percentage of students in 4th grade attending at least one special class per week.

School Year	Percentage of Students in 4 th Grade Attending a Class this Week					
	Art	Computer	Drama	Gym	Music	Science
1988	78	49	6	80	79	80
1990	70	54	7	77	80	80
1992	78	60	8	85	86	80
1994	76	64	6	83	83	77
1996	74	71	9	86	83	79
1999	71	71	8	83	85	76
2004	71	66	8	81	81	74

Source: Levine, et. al. (2008), derived from U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, NAEP Long-Term Trend Surveys.

Approximately 62 percent of middle school teachers believe that non-core subjects get crowded out because of spending more time on ELA and math. Also, 65 percent of middle school teachers report skipping important topics in their content area to cover the required curriculum (FDRG, 2012). Middle schools also appear to be offering a wide range of non-core courses. Students appear to be participating in the special classes at similar rates before and after NCLB (Table 3). Based on this data, Levine, Lopez, and Marcelo (2008) conclude that curriculum narrowing is not a major issue at the middle school level but substantial curriculum narrowing in middle is perceived by educators (FDRG, 2012).

Table 3: shows the percentage of students in 8th grade attending at least one special class per week.

School Year	Percentage of Students in 8 th Grade Attending a Class this Week					
	Art	Computer	Drama	Gym	Music	Science
1988	33	25	3	77	39	91
1990	32	29	6	81	43	90
1992	36	33	6	80	47	95
1994	35	32	6	81	47	94
1996	33	31	7	81	46	94
1999	33	39	8	75	46	93
2004	33	37	6	75	42	94

Source: Levine, et. al. (2008), derived from U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, NAEP Long-Term Trend Surveys.

Approximately 54 percent of high school teachers believe that non-core subjects get pushed aside because of spending more time on ELA and math in their school. Also, approximately 61 percent of high school teachers report skipping important topics in their content area to cover the required

curriculum (FDRG, 2012). Table 4 shows the increases in the proportion of students who report that they have taken a course in art, drama, and music weekly (Levine, Lopez, and Marcelo, 2008).

Table 4: shows the percentage of students in 11th grade attending at least one special class per week.

School Year	Percentage of Students in 11 th Grade Attending a Class this Week					
	Art	Computer	Drama	Gym	Music	Science
1988	15	19	5	43	17	69
1990	17	20	5	44	18	70
1992	21	25	6	50	20	80
1994	22	27	6	51	19	81
1996	18	29	6	48	22	81
1999	22	30	6	42	22	83
2004	22	27	7	40	20	82

Source: Levine, et. al. (2008), derived from U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, NAEP Long-Term Trend Surveys.

See that high school students graduating after the implementation of NCLB are graduating with many more credits than in earlier years (Table 5). More importantly, notice that high school students are earning more credits in the fine arts, foreign languages, and composition (writing) courses after the implementation of NCLB as compared to before NCLB.

Table 5: shows the average number of credits earned by high school graduates in various content areas over multiple years.

Graduating Class	Average Number of Credits Earned by High School Graduates							
	English	Math	Science	Social Studies	Fine Arts	Foreign Language	Comp	Total
1982	3.9	2.6	2.2	3.2	1.4	1.1	0.1	21.8
1987	4.1	3.1	2.6	3.4	1.4	1.5	0.5	23.1
1090	4.1	3.2	2.8	3.5	1.5	1.7	0.5	23.6
1994	4.2	3.4	3.1	3.6	1.6	1.8	0.6	24.3
1996	4.1	3.5	3.1	3.8	1.9	2.0	0.7	25.3
1999	4.3	3.7	3.2	3.9	2.0	2.1	0.8	26.2
2004	4.3	3.8	3.4	4.1	2.0	2.1	1.0	26.8

Source: Levine, et. al. (2008), derived from U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics (NCES), High School Transcript Study (HSTS), Selected years 1987–2000; High School and Beyond (HS&B), 1982. The 2005 results from the National Center for Education Statistics, *America's High School Graduates: Results from the 2005 NAEP High School Transcript Study* (NCES, 2007).

Tables 1 to 5 lead to somewhat conflicting conclusions. In some cases, curriculum is clearly narrowed but in other cases, students appear to be receiving a broader curriculum. Levine, Lopez, and Marcelo (p. 19, 2008) conclude with the thoughts that follow.

1. **“Back to basics.** Reading and math are fundamental. Performance in these subjects is inadequate for the whole population and very unequal. We need to focus our attention

on these subjects until all students can read, write, and calculate. The trends toward more reading and math in elementary education are desirable.

2. **The liberal arts.** Education today is too instrumental. It is all about outcomes, especially economic outcomes. It overlooks the intrinsic value of subjects like history, fine arts, natural sciences, foreign languages, and current events.
3. **Cultural literacy.** The only way to be literate is to have a base of facts, concepts, and vocabulary. We obtain that base best by studying history, natural science, social science, and foreign cultures. The trends shown in this report indicate that we are failing to emphasize cultural literacy in the early years; and that is why reading scores are flat despite increased time devoted to reading/language arts.
4. **4. Civic mission.** The purpose of schools is not (only) to prepare workers, but also to create an active and egalitarian democracy. That mission requires widespread literacy and numeracy. But it also requires specific knowledge of history, government, social issues, and current events. We are losing those elements of the curriculum.”

Findings from a Meta-Analytical Study

Through a qualitative meta-analysis of 49 qualitative studies, Au (2007) assessed the relationship between highly consequential statewide testing and classroom practice. The primary effect of high-stakes testing is that curricular content is narrowed (content contraction) to tested subjects, subject area knowledge is fragmented (knowledge fracturing) into test-related pieces, and teachers increase the use of teacher-centered pedagogies. This study also found that certain types of high-stakes tests have led to curricular content expansion, the integration of knowledge, and more student-centered, cooperative pedagogies. The findings of the study suggest that the nature of high-stakes-test-induced curricular control is dependent on the structures of the tests themselves.

The question of whether high-stakes testing affects curriculum has been highly contested in the field of educational research. Some of the early assertions contended that the tests would control classroom practice and one such study found that high-stakes tests promoted multiple-choice teaching. More recent research on the topic has produced mixed results:

- Some research finds that high-stakes tests are one of many factors potentially influencing classroom practice that have little to no influence on what teachers do in the classroom, and do not lead to improved learning experiences and positive educational outcomes.
- Other research reports the finding that high-stakes testing undermines education because it narrows curriculum, limits the ability of teachers to meet the needs of their students, and corrupts systems of educational measurement.

The meta-analysis found that there is a significant relationship between the implementation of highly consequential statewide assessments and changes in the curriculum, the structure of knowledge contained within the content, and the classroom pedagogy. A significant but minority of studies

Teachers indicate that they regularly use Test preparation materials and narrow their teaching to material covered on tests when high stakes are attached to the results. However, some educators have found ways to expand the curriculum and integrate content.

reported some form of content expansion as a result of high-stakes testing, with most of these coming from studies focusing on secondary education and social studies classrooms. Whether in the form of content contraction or content expansion, high-stakes testing leverages a significant amount content control over curriculum. The overall summary of the meta-analysis includes the following.

- Approximately 70 percent of the studies reported curriculum narrowing, where teachers are directed to increase instructional time in reading, writing, and math, while reducing the instructional time in other content areas.
- Approximately 50 percent of the studies reported a change in instruction that resulted in the delivery of a more fragmented and less integrated curriculum. This is best described as memorizing facts, learning about fragmented tasks expected to be on the test, and learning test taking skills.
- Approximately 65 percent of the studies reported a change in pedagogy that resulted in an increase of teacher-centered instructional strategies. Students were subjected to more direct instruction and had fewer opportunities to engage in student-centered collaborative activities.

In a general sense, the implementation of standardized and highly consequential statewide assessments are detrimental to curriculum and pedagogy (Au, 2007). See that approximately two-thirds of the studies that were reviewed indicate a negative reaction to testing, while only approximately one-fourth of the reviewed studies indicate a positive educator reaction to testing.

- Approximately 70 percent of the studies reported the combination of curriculum narrowing and teacher-centered pedagogy
- Approximately 66 percent of the studies reported the combination of increased teacher-centered pedagogy and knowledge fragmentation
- Approximately 65 percent of the studies reported the combination of increased curriculum narrowing and knowledge fragmentation
- Incidences of positive reactions such as curriculum expansion and knowledge integration was reported in approximately 25 percent or less of the studies.

Part II: Other Information about the Impacts of Statewide Testing

Educators and stakeholders, more often than not, contend that highly consequential statewide assessments are implemented for a variety of reasons. For example, people often believe that

Key Questions

Is it possible for higher standards and rigorous tests to lead to better student learning?

Can highly consequential assessments act as a motivator for students?

Will the next generation assessments change educator responses to highly consequential testing?

What can to done to ensure students will participate in the statewide assessments?

standardized assessments contribute to better classroom practices, higher levels of student learning, and serve as a motivator for students. Also, that standardized assessments are an effective way to assess the learning level of individual students, groups of students, and to hold schools accountable to the taxpaying public.

Can higher standards and more rigorous tests will lead to better student learning?

The results are mixed on whether high standards and rigorous assessments will lead to higher levels of student learning. Researchers broadly agree that some ELA and math scores increase on state assessments while scores on the National Assessment of Student Progress (NAEP) do not show comparable increases. Linn (in press) reports that test-based accountability has led to only small increases in test scores, but questions the meaningfulness of the changes on account of the subtle compromising of the instrument itself because of test score inflation.

The implementation of a highly consequential statewide assessment system based on rigorous academic standards often results in the delivery of a narrowed curriculum. Curriculum narrowing typically results in the delivery of a reduced amount of content and the content that is delivered is more fragmented and does not necessarily promote higher order thinking skills. However, the implementation of highly consequential statewide assessments have been shown to lead to increases in student-centered instruction, content integration, and subject matter expansion. Under these circumstances, teachers are adding some content to meet the demands of the tests and contracting content in other areas. The findings indicate that high-stakes-test-induced curricular expansion has taken place in social studies classrooms as teachers integrate reading-test-related literacy skills into their own social studies curricula (Au, 2007).

One study of Texas' high school exit exams found that increases in the exit exam scores were not associated with increases on the SAT or the NAEP. The author concluded that improved performance on the exit exams resulted from narrowed teaching goals where students were exposed only to information necessary for passing the statewide assessment (Haney, 2000). In another study, Amrein and Berliner (2002) reported that more than one-half of states with exit exams posted lower performances on the SAT, ACT, and NAEP after the exams were implemented. These studies broadly support the idea that assessment-based accountability does not improve student learning when a broad spectrum of outcomes are examined.

On the topic of curriculum narrowing, science is the one academic subject that does not appear to be crowded out. Approximately 68 percent of teachers report that instructional time and resources spent on science have increased or remained about the same (FDRG, 2012). Judson (2012) engaged in a study to determine whether state-level science, reading, or math achievement differed when science was included as a part of the statewide accountability framework. Judson reported the following.

- For the 4th and 8th grade, reading and math achievement did not differ on the basis of whether or not science was included as a part of the statewide accountability system. Science achievement was statistically different and higher in states that included science in statewide accountability.

When science was included in statewide accountability, science scores increased without any related declines in ELA or math.

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- The work shows that when science was tested and included in the statewide accountability system, science achievement increases as does reading and math achievement.
 - Science achievement is significantly higher in states where science is taught, tested, and included in the accountability system.

Daun-Barnett and St. John (2012) engaged in a rigorous statistical analysis to determine whether linking exit exams or course-taking requirements (in math) to high school graduation had a statistically significant impact on educational outcomes. Daun-Barnett and St. John report the following.

- Mandatory exit exams in math did not have a significant effect on SAT math scores. However, the requirement of exit exams had a negative effect on high school graduation rates and a positive effect on college continuation rates. Per the authors, the test requirement increases the academic expectations for students, which leads to better preparation for college. However, the policy serves as a barrier to high school completion for some.
- The adoption and implementation of state math standards had a positive effect on state test scores, had a negative effect on high school graduation rates, and no significant effect on college continuation rates.
- Requiring a higher level math course (e.g. Algebra I, Geometry, Algebra II) had a positive effect with the college continuation rates but non-significant effects on test scores and high school graduation rates.
- Linking higher math requirements and exit exams to high school graduation are potential policy levers applied to improve postsecondary opportunities. The policies may deter some students from completing high school, but a greater proportion of those who do graduate go on to college right after high school.

Can highly consequential assessments act as a motivator for students?

There is a significant concern that high school students will be less motivated than younger students to put forth their best effort taking a standardized accountability test that has no direct consequences for the students (Linn, in press). When statewide assessments do not carry consequences for the students, the manner in which to motivate them to score well on state high stakes testing is an issue that schools and school districts must solve. Even when there are no student-level stakes, the consequences of the students' lack of effort may result in reduced funding, required action, or school restructuring. Some school districts have resorted to providing incentives in various forms, while others have chosen to use

Students' motivation to do well on a test can be enhanced through incentives and sanctions.

consequences such as retention of students or failure to graduate in order to increase motivation to do well. If the incentives or consequences are not sufficient, students may opt to not complete the test items. According to some researchers, student motivation and effort are closely related to the level of the consequence. Regarding this assumption, the research is mixed.

Research by Sheldon and Biddle (1998) found that highly consequential testing often decreases student motivation and limits intrinsic interest in learning. Amrein and Berliner (2003) concur, in that students tend to be less intrinsically motivated

when rewards or incentives are linked to a task. In addition, this assumption relies on students being motivated by the reward or incentive being provided, a high school diploma. Highly consequential testing does not motivate students, and in fact, such tests often decrease student motivation, reduce

student learning, and leads to high student retention and higher dropout rates (Amrein and Berliner, 2003).

In a more recent mixed methods study (Brown, 2015), student level assessment results were compared from the 10th grade testing to the 11th grade testing, where the treatment or change was the inclusion of incentives and sanctions. In this case, the incentives and sanctions were framed to students in the context of future course-taking elective options, remedial course taking requirements, and fewer standardized assessments in the future. For the students participating in this study, approximately 74 percent improved scaled scores as 11th graders as compared to their 10th grade scores. A number of the students participating in the study indicated the incentive encouraged them to do even better and many of the students indicated a belief that the incentive had helped their friends to try harder on the test. As a result of the student responses and after implementation of the incentive by the administration, the author concluded that most of the students tried to master the assessment. At the school where this study was conducted the incentive/consequences program provided the motivation for the students to put forth more effort on the high stakes test.

Will the next generation assessments change educator responses to highly consequential testing?

According to Au (2007), research supports the existence of a relationship between the construction of the high-stakes tests themselves and the curricular changes induced by the tests. For example, teachers in Minnesota reported that their pedagogy was not negatively affected by high-stakes tests because they believed the tests to be well designed and did not promote drill and rote memorization. As another example, states with poorly designed systems of writing assessments promoted a technical, mechanical, five-paragraph essay form that prompted teachers' pedagogy to adapt to that form where tested. The findings suggest that test construction matters in terms of teachers' curricular responses to high-stakes tests. In other words, there is a widely held view that what is tested will be taught.

Research over the last decade has shown that state tests were not adequately testing higher-order thinking skills such as analysis, synthesis, the development of a logical argument, and the use of concepts to solve non-routine problems. Because these skills were not routinely assessed, researchers contended that the skills were not routinely taught to students. In order to examine the apparent problem, separate but parallel studies (Doorey and Polikoff, 2016; Schultz, Michaels, Dvorak, Wiley, 2016) engaged in an evaluation of the three new, multi-state assessments to determine whether they meet new criteria developed by the Council of Chief State School Officers (CCSSO) for test quality. Amongst the criteria, the evaluators were requested to determine whether the assessments require all students to demonstrate a wide range of thinking skills, including higher-order skills as specified in the Common Core of State Standards.

The next generation assessments will likely result in the teaching of more higher-order thinking skills.

The Common Core of State Standards call for greater emphasis on higher-order skills than fourteen highly regarded previous state assessments in ELA and math. Doorey and Polikoff (2016) concluded that the assessments included in the evaluation study were more challenging and placed greater emphasis on higher-order skills than prior state assessments. In addition, the new 5th and 8th grade ELA and math standards call for greater emphasis on higher-order thinking skills than either NAEP or PISA, both of which are regarded to be high-quality and challenging assessments. For the PARCC and Smarter Balanced high school assessments, the researchers concluded that the next generation assessments required students to demonstrate a range of higher-order analytical thinking skills that measured the complex content intended by the college- and career-readiness standards (Schultz, et. al., 2016).

Because the next generation assessments assess higher order thinking skills to a greater degree, it would follow that educators will reduce the delivery of fragmented knowledge. A more integrated curriculum requiring higher order thinking might be the norm rather than the exception. Assuming that the assessments will continue to drive classroom pedagogy, it is entirely possible that teachers would provide more student-centered learning opportunities in order to support the development of higher order thinking skills for their students.

What can be done to ensure students will participate in the statewide assessments?

Many reasons are given regarding parents' and students' decision to not participate in statewide testing and among the more common are the amount of instructional time lost to test preparation and administration, the irrelevance of standardized tests, the apparent difficulty of new standards and assessments, the pressure placed on students and educators to perform well, and the belief that the tests are instruments of corporate-driven reform directed at privatizing education. Statewide assessment results matter because the tests are the only comparable measures of building-level performance within a state and the only building-level academic measures disaggregated by demographic group (Bennett, 2016). Scores on annual statewide assessments can provide students, parents, educators, and stakeholders with crucial information about education, but only if students participate and are motivated to do well on the tests. Some of the important uses of student assessment data are as follows.

- Individual student data can be used to identify general strengths and weaknesses, which can lead to teachers modifying instruction and providing additional supports for those in need.
- When aggregated to the school level, assessment data can be used as one of other measures of school quality or school effectiveness.
- Standardized test scores are also routinely used to evaluate the effectiveness of school improvement programs.

The following recommendations are made to help school districts, educators, and policymakers maintain the accuracy and reliability of statewide assessment data.

- School districts should eliminate unnecessary testing and any assessments that do not provide unique or useful information.
- Educators should communicate with parents about the need, importance, and value derived from the assessment results.
- Policymakers should require students to participate in statewide testing.
- Policymakers should explicitly support appropriate uses of assessment results that span accountability, professional development, and research requirements (Croft, 2015).

Motivating students to participate and try to do well on assessments is a complex issue that is partly addressed in question number two in the above sections. Why would a student try to do well on a standardized assessment? According to Brown (2015), the answer likely lies with a combination of locally determined incentives and sanctions that are meaningful to the greatest number of students.

References Cited

Amrein, A., & Berliner, D. (2002). High-stakes testing, uncertainty, and student learning. *Educational Policy Analysis Archives*, 10(18). Retrieved on December 1, 2017 from <http://epaa.asu.edu>.

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- Amrein, A., & Berliner, D. (2003). The effects of high stakes testing on student motivation and learning. *Educational Leadership*, 60(5), 32–38.
- Au, W. (2007) High-Stakes Testing and Curricular Control: A Qualitative Metasynthesis. *Educational Researcher*, 36(5), p. 258-267.
- Bennett, R. (2016). *Opt out: An examination of issues* (Research Report No. RR-16-13). Princeton, NJ: Educational Testing Service. Retrieved December 12, 2017 from <http://dx.doi.org>.
- Brown, S. (2015). Motivating High School Students to Score Proficient on State Tests. *Journal of Education and Training Studies* 3(3). Retrieved on December 1, 2017 from <https://files.eric.ed.gov/fulltext/EJ1060823.pdf>.
- California Department of Education. (2006). California high school exit exam program overview. Available: <http://www.cde.ca.gov>.
- Croft, M. (2015). *Opt-Outs: What is Lost When Students Do Not Test*. ACT Research and Policy Brief. Retrieved on December 1, 2017 from <https://www.act.org>.
- Daun-Barnett, N. & St. John, E.P. (2012). Constrained curriculum in high Schools: The changing math standards and student achievement, high school graduation and college continuation. *Education Policy Analysis Archives*, 20(5). Retrieved November 29, 2017 from <http://epaa.asu.edu>.
- Doorey, N., and Polikoff, M. (2016). *Evaluating the Content and Quality of Next Generation Assessments*. Retrieved on December 12, 2017 from <https://edexcellence.net>.
- Farkas Duffett Research Group [FDRG]. (2012). *Learning Less: Public School Teachers Describe a Narrowing Curriculum*. A Report for Common Core by the Farkas Duffett Research Group, 22p. Retrieved on November 29, 2017 from <https://www.ewa.org>.
- Haney, W. (2000). The myth of the Texas miracle in education. *Educational Policy Analysis Archives*, 8(41). Retrieved on December 1, 2017 from <http://epaa.asu.edu>.
- Judson, E. (2012). When Science Counts as Much as Reading and Mathematics: An Examination of Differing State Accountability Policies. *Education Policy Analysis Archives*, 20(26), 21p. Retrieved on November 29, 2017 from <http://epaa.asu.edu>.
- Levine, P., Lopez, M., Marcelo, K. (2008). *Getting Narrower at the Base: The American Curriculum after NCLB*. The Center for Information and Research on Civic Learning and Engagement. Retrieved on December 13, 2017 from https://civicyouth.org/PopUps/Narrowing_Curriculum.pdf
- Linn, R. (in press). Test-Based Accountability. Retrieved on December 11, 2017 from <http://www.gordoncommission.org>.
- Schultz, S., Michaels, H., Dvorak, R., and Wiley, C. (2016). *Evaluating the Content and Quality of Next Generation High School Assessments*. Retrieved on December 12, 2017 from <https://www.humrro.org>.

RESEARCH BRIEF – PART C

Impacts of Curriculum Narrowing on Student Groups and Educators

Prior to the 1990s, statewide assessments were typified by off-the-shelf, norm referenced, instruments like the Iowa Test of Basic Skills. School and district performance were generally not well publicized unless the school or district was among the higher performing. Performance on these assessments carried few consequences for students or educators. In the 1990s, states adopted academic learning standards and developed customized assessments to assess student learning of the new standards. By the early 2000s, the federal government reauthorized the Elementary and Secondary Education Act (ESEA) in the form of the No Child Left Behind (NCLB) Act, and states accepted, to varying degrees, the many facets of high-stakes accountability.

When tests of student achievement are highly consequential for teachers and administrators, the pressure induced by the tests sometimes results in unintended negative behaviors and practices. Some teachers and administrators break of standardization procedures associated with the tests and even resort to cheating in one form or another. The pressure of the testing also results in teachers engaging in vast amounts of test preparation with their students. Teachers and administrators have been known to move low performing students out of their classes and schools, or mistreat them in some manner hoping they will drop out, or they hold them back thinking they might have a better chance to meet standard on the tests. Perhaps the most common reaction to consequential, standards-based, testing is to “teach to the test” using district or state mandated scripted curriculum. While some of these reactions to high-stakes testing are illegal, others are immoral, and yet others are ineffective in bringing about the higher levels of learning that all are striving for.

In highly consequential accountability frameworks, curriculum narrowing occurs when the core academic subjects of reading and mathematics are given priority over other subjects in the curriculum, including science, social studies, physical education, foreign languages, and the arts. When educators are pressured to improve student performance on highly consequential statewide assessments, a common and widespread practice of teachers is to exclude from their lesson plans the material that is not tested in an attempt to maximize the learning opportunity for students on the content of the test. This change is seen as a nearly unavoidable reaction to the pressure on teachers from district and state educational leaders to raise test scores. This “teaching to the test is often accompanied with the requirement for classroom teachers to closely follow scripted curricula developed and sometimes provided by the test developer.

Figure 1 provides an example of curriculum narrowing, broadly defined as the increased instructional time spent on a subject at the expense of instructional time for another subject. In this example for elementary grades, weekly instructional time devoted to English and math increased from 1988 to 2008, while the weekly instructional time spent on science and social studies declined (Blank, 2012). The number minutes devoted to weekly English instruction increased by 72 minutes (11.4 percent increase) and the science instructional time declined by 24 minutes from 1991 to 2008, a 14.8 percent decrease.

Figure 1: shows how the weekly minutes of instructional time in four content areas changed from the 1987-88 school year to the 2007-08 school year for elementary grades.

School Year	Average Minutes of Classroom Instruction Per Week			
	English	Math	Science	Social Studies
1987-88	660	294	156	168
1990-91	630	294	162	174
1993-94	654	318	180	180
1999-00	654	342	156	174
2003-04	696	324	138	150
2007-08	702	336	138	138
Change*	72	42	-24	-36

*Note: Change represents the increase or decrease in weekly minutes of instruction from 1991 to 2008. Modified from: Blank (2012). Source: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS). "Public Teacher Data File," 1987-88, 1990-91, 1993-94, 1999-2000, and 2003-04, and 2007-08.

Curriculum Narrowing Does Not Impact All Student Groups Equally

The Center on Education Policy supported a study to examine changes in curriculum and instructional time since the implementation of NCLB. The study summarized the responses from a nationally representative survey of 349 school districts. Many of the school district officials reported that their districts had no formal or mandated policy for school and classroom schedules, but that the districts did provide guidelines or recommendations for the amount of time schools should spend on various subjects (McMurrer, 2007). School districts reported of devoting much more time to English/language arts (ELA) and math each week as compared to all other subjects, especially for elementary schools (Figure 2).

Figure 2: shows the instructional minutes per week for elementary schools by subject in districts with and without schools identified as In Need of Improvement (INOI) in the 2006-07 school year.

	Number of Instructional Minutes Per Week		
	Districts with No Schools Identified as INOI	Districts with at Least One School Identified as INOI	Difference*
English/Language Arts	483	568	85
Math	320	332	12
Science	181	169	-12
Social Studies	181	167	-14
Art and Music	113	97	-16
Physical Education	106	103	-3
Lunch	141	147	6
Recess	134	129	-5

*Note: None of the apparent differences are statistically significant, except for English/language arts. Modified from (McMurrer, 2007).

The study further sought to learn more about how instructional time differed between different types of schools, in this case, whether or not schools made or did not make adequate yearly progress (AYP). After a school was determined to have not made AYP for two consecutive years and was identified as in need of improvement under the No Child Left Behind Act, a typical response was to increase the instructional time devoted to the tested subjects of ELA and math and decrease instructional time in

other untested subjects. Under NCLB, schools identified as in need of improvement, more often than not, served higher proportions of students qualifying for the Free and Reduced Price Lunch Program, participating in bilingual education, receiving special education services, or students of color. This analysis (McMurrer, 2007) provides evidence that the students most at risk are subjected to curriculum narrowing to a greater degree than students considered to be not at risk.

Curriculum narrowing is typified by the teaching of fewer higher order thinking skills, the teaching of test taking skills, and fragmented knowledge. This type of teaching has not been shown to lead to meaningful learning or to substantially improved assessment results. So by narrowing the curriculum at schools serving higher percentages of struggling students and not making AYP, educators are actually helping to perpetuate achievement gaps. The students most at risk and the least successful are subject to the least effective type of curriculum.

Impact of Curriculum Narrowing on Science Scores by Socioeconomic Status

Rolf Blank (2012) undertook an analysis for the Noyce Foundation to examine the impact of reduced instructional time in science in the elementary grades on standardized science test results. Among other things, the study framed some of the key findings in the context of student socioeconomic status as measured by qualifying for the Free and Reduced Price Lunch (FRL) Program. Survey data from the National Assessment of Educational Progress (NAEP) specifying the amount of weekly instructional time devoted to science was compiled separately for students based on FRL status and scale scores analyzed (Figure 3).

The analysis of the 2009 4th Grade NAEP science results produces several key findings. First, see that the performance on the science assessment increases as the instructional time increases, regardless of FRL status. Second, see that the group of students qualifying for the FRL program perform considerably lower than the Not FRL student group. And finally, see that the performance gap based on socioeconomic status (Not FRL – FRL) remains consistent at 28 to 29 scale score points, regardless of the amount of weekly instructional time.

Figure 3: shows the average scaled score on the 2009 NAEP 4th Grade Science assessment by socioeconomic status as measured by qualifying for the Free and Reduced Price Lunch program.

Science Instruction per Week (Minutes)		Average Scale Score		
From	To	Qualifies for Free and Reduced Price Lunch (FRL)	Does Not Qualify for Free and Reduced Price Lunch (Not FRL)	Performance Gap* (Scaled Score Points)
	< 60	126	154	28
60	119	130	159	29
120	179	135	163	28
180	239	135	164	29
≥ 240		138	166	28

*Note: Performance gap is the average scale score for Not FRL minus the average scale score for FRL and is shown in scale score points. A positive value means the Not FRL student group performed better than the FRL student group. Modified from Blank (2012).

High poverty schools are more apt to be identified as in need of improvement under NCLB and students at these schools are more likely to experience a narrowed and scripted curriculum. When the instructional time for science is reduced at these schools, be sure that the students’ ability to perform well on current and future science assessments will also be reduced. Whether mandated or voluntarily

chosen, the decision to narrow the curriculum will reinforce the persistent achievement gaps evident across the country.

The Social Studies Squeeze

In her qualitative research, Judith Pace (2008) finds that high stakes accountability under NCLB is “squeezing out” instructional time for social studies disproportionately, depending on the socioeconomic status of schools and school districts. In a high performing, affluent district, the teachers were afforded the opportunity to utilize their professional capacities as they saw fit, while in the other districts, teachers viewed high-stakes testing as an impediment to teacher decision-making over curriculum and experienced this constraint to varying extents.

Teachers from the high performing, affluent schools, serving mostly white children mostly reported that curriculum narrowing did not even exist for them. These teachers were granted far more autonomy, were not subjected to testing pressures, and resources were plentiful. Those from higher income families were exposed to more content, given work that tapped their multiple intelligences, and motivated through stimulating activities (Pace, 2011).

Teachers in the lowest performing, lower income schools, serving mostly students of color spoke of the difficulty finding adequate time for history-social science, due to mandated scheduling for ELA and math. Teachers indicated that their professional authority was constrained by mandated schedules and the scarcity of resources. Students from lower income backgrounds were taught less social studies content, assigned work that required more formulaic than creative responses, and expected to comply with a textbook- and skills-based curriculum (Pace, 2011).

Curriculum Narrowing Based on Race/Ethnicity

The Center for Information and Research on Civic Learning and Engagement supported a study of changes to curriculum after the implementation of NCLB. The authors cited previous research finding that students of color and those from low income families are most likely to attend schools that are not meeting NCLB annual goals in reading and math, and these schools also may lack resources to provide special classes such as music and art. If these schools are identified as being in need of improvement, curriculum narrowing may occur as a remedy to improve low reading and math results.

Levine, Lopez, & Marcelo (2008) analyzed self-reported survey data regarding the hours of instruction per week in four main content areas for schools based on the percentage of minority students enrolled at the school. For discussion purposes here, schools with more than 50 percent minority students are characterized as high minority schools and schools with less than 50 percent minority students are characterized as low minority schools.

In summary, curriculum narrowing was evident in both high minority and low minority schools, but was narrowed to a greater degree in schools where minority students comprised more than 50 percent of the enrollment. Figure 4 shows that the following were also found to be evident for all levels of public schools.

- Students at high minority schools receive on average less English instruction than those at low minority schools, and both high and low minority schools significantly increased instructional time in English from 1991 to 2004.
- Students at high minority schools receive on average more math instruction than those at low minority schools, and both high and low minority schools significantly increased instructional time in math from 1991 to 2004.

- Students at high minority schools receive on average a little more science instruction than those at low minority schools, and both high and low minority schools significantly reduced science instructional time beginning in 2000.
- Students at high minority schools receive on average a little more social studies instruction than those at low minority schools, and both high and low minority schools significantly reduced social studies instructional time after No Child Left Behind accountability was implemented.

Figure 4: Shows how the number of instructional minutes per week for public schools with more or less than 50 percent minority students changed over time.

	English		Math		Science		Social Studies	
	> 50% Minority	< 50% Minority	> 50% Minority	< 50% Minority	> 50% Minority	<50% Minority	> 50% Minority	<50% Minority
1987-88	655	672	304	280	134	114	136	126
1990-91	649	676	304	282	132	127	155	142
1993-94	674	702	319	320	157	138	155	150
1999-00	726	713	342	340	118	128	149	140
2003-04	740	749	318	298	106	103	118	112
Change*	91	73	14	16	-26	-24	-37	-30

Modified from: Levine, Lopez, & Marcelo (2008). Data from U.S Department of Education, Institute of Education Sciences, National Center for Education Statistics, Schools and Staffing Survey. *Note: change represents the change in minutes of instruction from 1991 to 2004.

Levine, Lopez, & Marcelo (2008) contend that, in general, urban and rural schools are at greater risk of failing to meet standards and accountability measures. The data (Figure 5) show that the curriculum narrowed for each of the three types of schools identified in the work. Curriculum narrowing was most prevalent in rural schools and to a slightly less degree urban schools. This means that curriculum narrowing was least pronounced in schools in a suburban setting.

- Curriculum narrowing was most prevalent in the increasing of instructional time in English.
- The most dramatic decreases in instructional time for science and social studies occurred in the years immediately following the implementation of No Child Left Behind accountability.

Figure 5: shows how the number of instructional minutes per week for grades one to five in public schools differ based on school setting and over time.

	English			Math			Science			Social Studies		
	Urban	Sub	Rural	Urban	Sub	Rural	Urban	Sub	Rural	Urban	Sub	Rural
1988	664	638	671	314	266	283	124	115	117	139	128	126
1991	631	685	683	306	286	279	127	128	128	151	144	136
1994	686	674	715	320	307	328	151	139	137	152	150	150
2000	715	710	733	328	341	350	130	124	118	152	144	127
2004	724	728	794	314	302	298	102	108	105	112	118	106
Diff	93	43	111	8	16	19	-25	-20	-23	-39	-26	-30

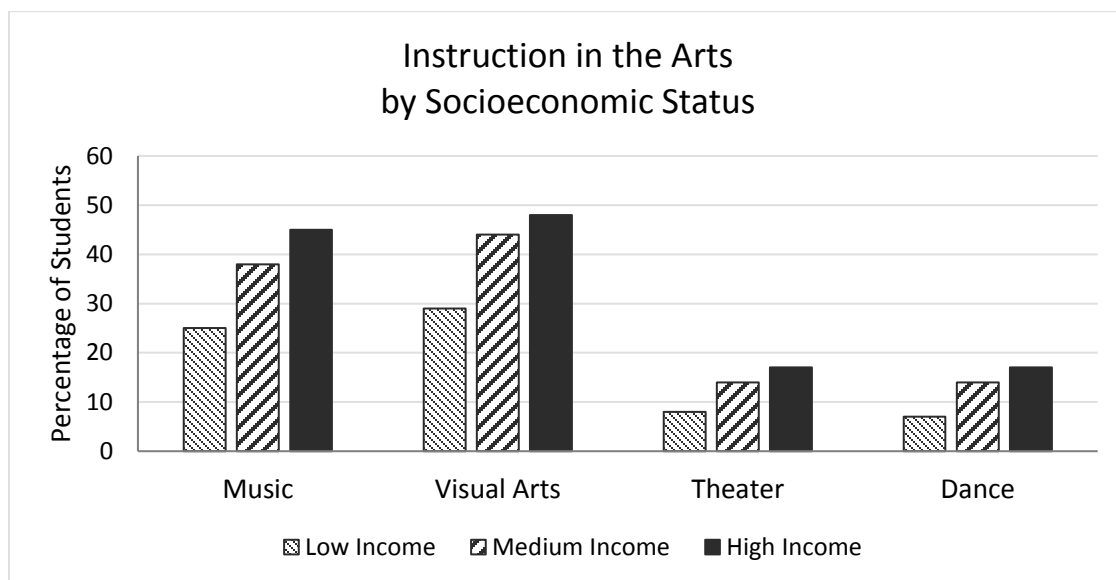
Modified from: Levine, Lopez, & Marcelo (2008). Data from U.S Department of Education, Institute of Education Sciences, National Center for Education Statistics, Schools and Staffing Survey. *Note: Diff = difference and represents the change in instructional minutes from 1991 to 2004. A negative value means the instructional time per week declined.

The findings from Levine, Lopez, & Marcelo (2008) are similar to other findings reported here. Schools with greater percentages of minority students are more likely to provide a narrowed curriculum for teachers to “teach to the test”. Also, that schools in urban and rural settings also provide a more narrowed curriculum for their students in the hope of improving test scores. Once again, students of color and those in urban and rural school settings who are more likely to underperform on standardized tests are delivered a narrowed curriculum. By delivering a narrowed curriculum and teaching to the test, educators are perpetuating achievement gaps.

Squeezing Out the Arts

In a study of California students, Woodworth and others (2007) show that significantly higher percentages of students from wealthy households receive instruction in the arts in their public school as compared to students from low income households (Figure 6). Students from low income households at high poverty schools are delivered a narrowed curriculum while students from affluent households in low poverty schools are provided a broad and rich curriculum that routinely include the arts, a curriculum that has a greater likelihood of contributing to postsecondary opportunities and success.

Figure 6: shows the percentage of California students receiving instruction in the arts by socioeconomic status (Woodworth, Gallagher, & Guha, 2007).



Impacts of Curriculum Narrowing on Educators

As part of a Ph.D. dissertation, Newberg-Long (2010) conducted qualitative research study framed around Interviews with master teachers. Her findings support the view that curriculum narrowing is not helping students prepare for the 21st century. Teachers perceive that pressure from the district and state to raise student achievement has led to the required use of scripted curricula in reading and math. Scripted curriculum is a one-size-fits-all formula that does not necessarily produce the purported increases in student achievement and does not meet the needs of all of their students, yet the curriculum must be implemented and taught with fidelity (Newberg-Long, 2010).

Teachers interviewed in the higher performing schools had the perception that scripted programs are demeaning to both students and teachers, and do not take into consideration individual mastery and needs. A teacher from a low performing school reported that the required curriculum was not producing the desired outcomes and felt compelled to teach a test-taking unit to her students just to provide them

with the background information on the format and vocabulary used in state tests (Newberg-Long, 2010).

In the environment of high-stakes testing and accountability, teachers today are experiencing a much higher level of stress compared to a decade or so ago. Teachers report a certain lack of joy in their profession due to the current environment of stress and lack of trust by the district. Some of the interviewed teachers referred to fear of losing their passion for teaching that would result in students losing their love of learning. The teachers worried about the direction in which the nation was moving as a result of the widespread implementation of scripted curricula and high-stakes testing in public education (Newberg-Long, 2010).

References Cited

- Blank, R. (2012). What is the Impact of Decline in Science Instructional Time in Elementary School? Paper prepared for the Noyce Foundation, 21pp. Retrieved on December 20, 2017 from <http://www.csss-science.org/downloads/NAEPElemScienceData.pdf>.
- Levine, P., Lopez, M., Marcelo, K. (2008). *Getting Narrower at the Base: The American Curriculum after NCLB*. The Center for Information and Research on Civic Learning and Engagement. Retrieved on December 13, 2017 from https://civicyouth.org/PopUps/Narrowing_Curriculum.pdf
- McMurrer, J. (2007). Choices, Changes, and Challenges: Curriculum and Instruction in the NCLB Era. Center on Education Policy. Retrieved on December 20, 2017 from <https://www.cep-dc.org>.
- Newberg-Long, D. (2010). Narrowing of Curriculum: Teaching in an Age of Accountability. *Electronic Theses and Dissertations*. 892. Retrieved on December 19, 2017 from <https://digitalcommons.du.edu/etd/892>.
- Pace, J. (2011). The Complex and Unequal Impact of High Stakes Accountability On Untested Social Studies. *Theory and Research in Social Education*. 39. P. 32-60. Retrieved on December 19, from <https://www.researchgate.net/publication/233297375>.
- Pace, J. (2008). Inequalities in History-Social Science Teaching under High-Stakes Accountability: Interviews with Fifth-Grade Teachers in California. *Social Studies Research and Practice*, 3(1), p.24-40. Retrieved on December 20, 2017 from <http://www.socstrpr.org/file>.
- Woodworth, K., Gallagher, H., & Guha, R. (2007). *An unfinished canvas. Arts education in California: Taking stock of policies and practices*. Summary Report. Menlo Park, CA: SRI International. Retrieved November 17, 2017 from <http://policyweb.sri.com/cep/publications>.

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