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Imperative

Editors' Introduction

Imagine yourself standing outside looking into Nelson Mandela's former cell block on Robbin Island, Cape Town and reflecting on how his near two decades there ultimately led to later years as president of a post-apartheid South Africa. In the same moment, consider that second term president of the United States, Barack Obama, was born amidst the era of the Brown v. Board of Education Supreme Court finding that "separate but equal" laws were unconstitutional, and only a handful of generations away from Jim Crow laws and back to slavery times. One of the key tools of oppression by any one group over another has often been laws preventing literacy and basic education. Apartheid and slavery, as forms of oppression, were no different. The process for societies to transition from oppressed states to more democratic representation and to equal access is a long haul. And even when political leaders attempt to make shifts, their best intentions may have consequences that actually delay change.

After leaving classroom teaching on the West Side of Chicago, Elizabeth (Lisa) Dellamora spent time in South Africa studying the impact of the post-apartheid government policy option given to every school to select one of 11 state approved languages. A few years later, she also conducted research in a school in New York City on the impact of the No Child Left Behind legislation. This act of law mandated strict testing requirements that had the stated intention of improving success rates for all students, including those with the greatest needs and challenges. In this chapter, Lisa draws from these two unique research experiences to challenge us to consider the implications for policy decisions here in the 21st century. This chapter heightens our awareness that is a turning point time in education, and the direction we take will ripple like a tsunami across our schools for generations to come. Lisa guides us through what she calls the "unintended consequences" of the policy directions these two countries mandated as they attempted to bring equal access and higher achievement to students of color in underresourced schools, in communities of high unemployment and generational poverty. Both the multilingual options set into law by South Africa and the No Child Left Behind act, as Lisa describes in this chapter, have taken these two countries down a path toward stasis and with few major benefits, and even some backtracking, for children of color. In South Africa, it has meant a confusion of language choices across schools leading to limited performance changes. In the United States, it has meant that many children of color, those children in poverty and those students in low-performing schools are often being taught with a focus on lower order testing regimens rather than higher order thinking. The results have been mixed at best at a time when high quality education is key to success.

The question of equality of access is now centered on the quality of teaching in schools around the world, but for what purpose? It is quite possible to have "high quality" teachers in schools that are focused on the purpose of improving students' scores on lower order assessments.

Starting in 2001, Lisa spent several years studying a school in the Bedford-Stuyvesant area of Brooklyn, New York City, observing, interviewing, and engaging teachers and administrators in longer conversations about the impact of No Child Left Behind on their teaching and the impact on students of color. This chapter opens our minds to larger questions: How can we simultaneously teach for 21st-century thinking and learning while engaging fundamental literacy development? Can we teach to a lower order and expect high quality results? These questions resonate across this whole book as our group of authors enter these concerns from different points along the same pathway to a common theme. We can and must engage every student at higher orders of thinking, with meaningful questions within the context of inquiry, while also facilitating dispositions for mindfulness. If we don't, we will be sustaining an "intellectual apartheid" as we offer equal access to the school house door with new computers, textbooks, and better teaching—but staying at ground level rather than rising to the rooftop.

WORKING TO AVOID INTELLECTUAL APARTHEID

A Synthesis View of Thinking Schools for Merging Core Academic Knowledge With 21st-Century Skills

Elizabeth Dellamora

INTRODUCTION ■

Schools are now dynamic places nested in complicated communities that are part of a broader world of infinite complexity. Given this complexity, at its core, education is not and simply cannot be about preparing students to take a test and move on to the next grade or school as current policy in the United States may lead some people to believe. The work of Thinking Schools explored in this book is focused on preparing students for a life of meaningful and purposeful self-fulfillment and citizenship outside and beyond their years of schooling. It requires a blend of core, academic content knowledge balanced by the skills and abilities necessary to thrive in the 21st century.

At no time in history have the framework, pragmatic approach, and vision of Thinking Schools been more important. There is a distinct need for a shift from the current prevailing focus of most schools to an explicit focus on thinking as a foundation for improving achievement, promoting more dynamic classroom interactions, and creating innovators who will change the world, as Tony Wagner (2012) states is the necessary outcome of education today. As a result of technology, people of our world today are interconnected with greater ease, frequency, intimacy, and purpose. This rate of change is growing exponentially. Necessarily, this not only brings opportunity for some, but also the clear

possibility of confusion and conflict. Providing an education that nurtures innovation, creativity, and thinking is more important than at any other time in our history. As we enter the 21st century, we are responsible for preparing students for a future world that we have not yet even begun to fully imagine.

Herein lies the argument for Thinking Schools that target the development of students who will need to navigate the landscape that lies before them: Students need more than core academic knowledge. Success in their future requires that their thoughts and actions are driven by active, inquiring, questioning minds that consistently seek to engage deeply with content learning and demonstrate the dispositions that will allow them to experience success. Such success needs to be framed by what is necessary within the actual or virtual walls of schools of tomorrow and also in the world beyond that is changing more rapidly than we could ever prepare them for through conventional schooling principles.

The importance of developing schools focused on thinking as a foundation cannot be underestimated. There is now clarity across the field that there is a need to prepare students for a society that already and increasingly demands high levels of thinking and technology use, the ability to generate and innovate, and the capacity to collaborate and communicate with a focus on solving open-ended problems with many possible solutions. This is a moral imperative, an obligation we have to all students, but even more so to those who have been historically marginalized. The current focus on shared standards across most of the United States with the onset of the Common Core lays out higher standards for all students than any time in U.S. history. But far too many students never even graduate, much less achieve the high levels of school performance that set them up for success in college and career post-high school. A very high percentage of Latinos and African Americans in the United States—and other similar “minority” groups and impoverished members of our diverse society—perform far below their more privileged peers and could be considered educationally, as well as economically, impoverished. And it isn’t because we are not trying, but rather trying with a misguided perception of the problem that impacts all students as we work to prepare them for life and work in the 21st century, and most significantly affects poor and minority populations.

The broad context of the global achievement gap between the United States and other countries, and the internal gap between minority and impoverished students and their more privileged peers has long attracted my attention as an educator and citizen. Over time, I have become increasingly aware of these gaps and of the unintended consequences of well-intentioned education policies that can make situations worse—attempting to address a problem at one level but creating additional problems in the process.

Much of my 20-year career in the field of education has been drawn to the disparities I have observed both within and outside school settings that ultimately help or hinder a child’s potential for success in their years during and beyond public education. As I reflect on these decades of experience in schools across the United States and the world, two stand out to me as being significantly relevant to the conversation within the pages of this book dedicated to exploring preparation of our youth for meaningful citizenship in the 21st century.

The first experience was my journey to South Africa in the summer of 2004. My intent for this trip was to learn about the educational opportunities available to the once oppressed majority of the South Africa population in a post-apartheid. The site visits, research, and interviews surfaced an education system that, with all good intentions, had led to some unforeseen challenges and unintended consequences. The newly liberated South Africa, in its efforts to bring equity and empowerment to diverse schools across the country, enacted legislation that instituted a “choice” policy that provided every school community the opportunity to select one of the 11 “official” languages of post-apartheid South Africa. With the best of intentions toward equity and opportunity, this policy unintentionally led to a new set of problems and challenges.

A second experience that surfaced across many years was my in-depth doctoral research conducted in the Bedford Stuyvesant area of Brooklyn, New York. My doctoral work was partially driven by my early teaching on the West Side of Chicago where I found myself working as a first-year teacher in a school that was underresourced in comparison to my own education and teacher-preparation opportunities. Through my doctoral research, I looked at one school deeply, investigating how the No Child Left Behind (NCLB) act impacted leadership, teaching, and learning of the poor and minority students who made up the population of this school. I found, once again, that a policy with the best intentions did not ultimately have the outcome it planned, because unforeseen consequences surfaced as a result of adherence to the policy. In this case, NCLB was intended to improve teaching and close the achievement gap. But one of the major effects is that teachers and administrators in this school were driven, instead, to test the gap rather than close it.

Both in South Africa and in the United States, educational and political responses to obvious, deeply systemic problems seem to have led educators spiraling away from schooling efforts being focused on a well-developed literacy and higher orders of thinking. In fact, they have done the opposite. I found in both situations and within different contexts that despite intentions toward good and opportunity for all the policies and related practices have remarkably created a stasis that may take several generations to change. In this chapter, we first journey to South Africa before returning to the United States to investigate the parallels and how the Thinking Schools approach offers a practical pathway forward.

UNINTENDED CONSEQUENCES ■

In 1992, the end of the apartheid “experiment” was announced by the President of the National Party, then leader of South Africa, F. W. de Klerk. Simultaneously, citizens, “black” and “white” and “colored,” found themselves in a new world characterized by both hope and fear. Previous to that world, people of South Africa found themselves in one of two not-so-rough categories: The minority white citizens were the privileged, and the majority population of black and colored residents of the country were not recognized as rightful citizens. During

the years of apartheid, although over 90% of the population could not claim either English or Afrikaans as their native tongue, the languages of the minority, the white South African population, were given rank over the other indigenous languages. The educational system was designed to keep the Afrikaners in their place of privileged opportunity. Once the spell of the separate and unequal design of apartheid was broken, one among many daunting and immediate problems to solve was: how to educate all children in preparation for equal citizenship in this new world?

Many looked to the educational system as an important element in moving the country on to its reincarnated status as the "New South Africa." Previous to the end of the apartheid era, schools had been used as "tools for underdevelopment" (Abel, 2003, p. 129) for the black population. Throughout the apartheid regime, families and communities had been broken, separated, and spread throughout townships across the country—an intentional mixing of the African tribes and native communities—with the intent to diminish the possibility of the different tribes rising up against their oppressors. Children found themselves in schools filled with peers and teachers who spoke any one of the nine native languages, most often not their own first language. Using the Afrikaans language as a medium for instruction in black schools provided a constant reminder to teachers and students of who dominated their world. Language, culture, and power are so inherently tied to one another that one of the fundamental conditions of the new South African Constitution of 1996 intended to provide opportunity to *all* citizens of the country guaranteed the privileging of the languages represented across the nation, in all areas, including education. Rather than select one single language to unify the country, all groups were recognized equally and, in total, 11 languages were ultimately designated as official languages of the country, two of them being English and Afrikaans, the remaining nine being those of indigenous black African peoples (Smith, 1993). Literally, "multilingualism is enshrined in the post-apartheid Constitution of South Africa" (Abel, 2003, p. 128).

Following the construction of a new constitution, countless other laws and policies were designed and implemented across all walks of South African life. One of the most profound and closely linked to the constitution was the Language in Education Policy of 1997. This policy encourages the cognitive development in learners' home languages while at the same time developing competency in another language (Abel, 2003). *Curriculum 2005*, the nation's educational curriculum, went one step further, guaranteeing every student the right to learn in an academic setting in the language of his or her choice (Abel, 2003; Buthelezi, 2002; Republic of South Africa, 2001–2002). The decision on the language of instruction for each school falls into the hands of the school community it serves.

In the wake of so many years of oppression, the power of choice was an important one for black South Africans. Many students are now learning from a curriculum that is free of the blatant racism that it was once characterized by, and the choice of language for instruction was an additional, provided opportunity. These decisions about the language for instruction came with challenges, though, as within any one school community the student populations had

a wide range of the nine official languages. Any decision about the language for instruction in any school community, therefore, *automatically* advantaged some learners over others. As a result, “significant and increasing numbers of South African schools were characterized by large numbers of students experiencing learning in a language that is not their home language” (Abel, 2003, p. 130).

Policies may be engineered with the best intentions, and the Language in Education Policy that is now encompassed by Curriculum 2005 is a premier example of the efforts made by well-meaning policymakers. One of the unfortunate, unforeseen consequences of the Language in Education Policy that sought to privilege such communities with their choice of language for instruction in schools is that most of the schools chose English as the language for instruction over any of the other 10 national languages, even though many languages were represented at each school.

This choice was typically made for one or both of two reasons: (1) an opportunity to register formal displeasure with the history of oppression by shunning Afrikaans (the language of white, European South Africans), and (2) English was seen as the language of power, opportunity. The school communities that selected English as the language of instruction with the greatest of intentions quickly found themselves in difficult situations that I witnessed during my school and classroom visits: a lack of materials in English, teachers who struggled with the English language, classrooms full of students whose native language was quite likely different from that of their teacher and many of their classmates, and a general lack of proficiency across staff and students in the English language.

The notion of the impact of the unintended consequences of policy decisions captured my interest in South Africa and surfaced repeatedly throughout my doctoral studies and now confronts our schools here in the United States as we work to prepare our students for citizenry in the 21st century.

INTELLECTUAL APARTHEID IN THE UNITED STATES ■

While there is certainly not a point-by-point parallel, there are interesting comparisons between the revolutionary overthrow of apartheid in South Africa and the educational impacts of the civil rights movement over 50 years ago and other efforts toward equity in the United States. It is clear that the attempt to move beyond these past injustices evidenced in social and political contexts is bound by a need to “equalize” opportunity and thus achievement by all members of society. The idea of “separate and equal” did not survive logical argument or the outcomes in either country. The continued attempt to provide equal access to high quality resources and educational opportunity for “minority” students and those in low socioeconomic communities resonates and overlaps with South Africa’s focus on the same. One similarity is the failure of educational and political leaders in both the countries to change the situation, even when they set out to do so with the best intentions. Larson’s (personal communication, June 15, 2004) warning holds true on this continent as well as in South Africa: “Policy plays out in practice with intended and unintended consequences.”

There have been a number of pivotal moments in the history of public schooling in the United States where we can see the effects of policies on practice. In the 1800s, the American common school arose with a formal focus on providing a basic academic foundation for students with the interest of preparing citizens (largely white) for participation in society. In the 1900s, the definition of *student* evolved with a “commitment to educate all Americans regardless of race, gender, social class, or ethnicity” (Gardner, 2010, p. 9) and there were decades of change in the access and quality of education granted to students of all demographics.

In the 21st century, we currently face another significant, pivotal moment: how to equip students with the skills they need to thrive in this century while not compromising the academic foundation of the 19th and 20th centuries. Currently, there is a significant chasm between educators and political policy makers: those insisting on a “core knowledge and academic skills” approach systemically tied to strict accountability through test scores and others who believe that a new road must be taken, a journey toward what is now based on the need for a systemic paradigm shift toward developing 21st century skills. There are also those in between these polarities who call for both, yet finding that middle ground has thus far proven to be elusive. It is becoming increasingly clear that the focus on high stakes standardized testing directly linked to funding has not proven to lead to widespread improvement in teaching and learning. Instead, the results show that, like the South Africa experience, our country has created a new, more ominous problem at a time in history when our education system needs to move dynamically away from “teaching to the test” with the intent of closing the achievement gap to a focus on what are called *21st-century skills*. More children across ALL demographics are now being left behind children from other countries around the world because teachers and administrative leaders are threatened by the “big stick” of poor test scores. In a nutshell, higher order thinking and innovation in schools has been pushed to the side by lower order testing regimens.

Students who are subjected to curricula developed with a heavy focus on core academic knowledge as measured by standardized tests to the exclusion of intentional development of 21st-century skills such as those offered as foundation for Thinking Schools might very well result in students who fall victim to some sort of unintentional intellectual apartheid. These students do not benefit from the development of applied cognitive and critical thinking approaches, dispositions, and rich questioning enquiry. The victims in this case are those who are educated with a narrow and limited curricular focus on content knowledge development bolstered by the big stick of high-stakes testing. These content-rich, 21st-century–skills-poor students stand in contrast to their privileged peers, both in this country and across the world who are being prepared for life in the 21st century. The privileged students are those with the opportunity of learning through a curriculum that honors core academic knowledge, but that is simultaneously and intentionally designed to develop applied cognitive and critical thinking processes and dispositions that will adequately prepare them for productive life in the 21st century.

There are many who argue the importance of explicit instruction in what have come to be defined as essential skills for successful citizenry in the 21st

century (Bellanca & Brandt, 2010; Johnson, 2009; Lemke & Coughlin, 2009; Partnership for 21st Century Skills, 2006; Trilling & Fadel, 2009). Considering again this pivotal moment in U.S. schooling, Kay (2010) asserts that:

The new social contract is different: only people who have the knowledge and skills to negotiate constant change and reinvent themselves for new situations will succeed . . . without 21st century skills, people are relegated to low-wage, low-skill jobs. Proficiency in 21st century skills is the new civil right for our times. (p. xvii)

My studies in South Africa surfaced an injustice that was the unintended outcome of the *Language in Education* policy put into place with the best of intentions. This research was nested in the middle of more extensive research I was doing between 2002 and 2009 on educational opportunity in the United States. In 2002, I began my doctoral studies with a focus on tracking the impact of how NCLB (U.S. Department of Education, 2002) would influence educational opportunity and achievement in urban schools serving poor students of color.

Similar to the *Language in Education* policy enacted with the best of intentions in South Africa, NCLB was enacted with the highly publicized intent of supporting low achieving students and closing “the achievement gap,” most often in reference to statistics detailing how African American and Hispanic populations, especially in low socioeconomic contexts, were not achieving at high levels. Like the policies in South Africa, unintended consequences of federal education policy have surfaced in the United States and appear to be, at best, maintaining the existing gap between poor students of color and their more privileged, white peers. Although National Assessment of Educational Progress (NAEP) results show improvement in subgroup scores since the first administration of the test as reported in 1975, a significant gap continues to exist across racial and social class subgroups. Analysis of the 1975, 2004, and 2008 NAEP results of the reading and mathematics tests show no significant change in the gap between black or Hispanic and white students (National Center for Education Statistics, 2008). It is becoming clear that the fundamental intentions of NCLB have not been realized from the enactment of this legislation. The law has not resulted in the closing of the achievement gap. Educational opportunity for historically poor-performing students has not been enhanced. Any instructional and curricular shifts for these students have moved even further away from those of their advantaged peers.

Chester Finn and Diane Ravitch (2007), early advocates of NCLB, now express concern for how testing has taken over classrooms and curriculum as a result of NCLB. They write:

We’re already at risk of turning U.S. 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, and our economy. (sec. 3, para. 3)

Mirroring Paolo Freire's (1970) concern that different sectors of the population are exposed to different educational models, Finn and Ravitch (2007) identify the widening social divide and deepening of preexisting inequities that will result as schools respond to NCLB's demands for increased performance on standardized tests, noting that, "... rich kids will study philosophy and art, music and history; their poor peers will fill in bubbles on test sheets" (sec. 3, para. 3).

The guiding question for my study was this: How does the emphasis on achievement under the umbrella of NCLB play out in teachers' practices and in the experiences of both students and their teachers? I used three primary methods for gathering data: observations in the school and in classrooms; interviews with urban students, teachers, and administrators; and document analysis of relevant school materials to gain insight into how NCLB is impacting the teaching and learning of poor students of color. In seeking a school for the purposes of my case study, I sought out an urban public elementary school in New York City with a significant number of poor students of color. The School of Academic Excellence (names of the school, principal, and teachers have been altered for privacy reasons), is an exemplar of an urban school struggling to support the achievement and success of its students and teachers. The majority of the students are poor and of color, and the teaching staff has a broad range of experience and come from varied backgrounds, paralleling the reality of the majority of public schools in urban settings. At the time of my study, the enrollment was 298 students. The school is located within the boundaries of a well-known area of Brooklyn called Bedford-Stuyvesant, which is locally known as Bed-Stuy. Bed-Stuy is not famous for its landmarks, bridges, or museums like many parts of New York City. Bed-Stuy's fame is more closely aligned with Barry Stein's portrayal of the community as "the largest ghetto in the country" (1975, p. 1).

Standardized test results show that the school had made Adequate Yearly Progress (AYP) at all grades and all subgroups for the previous three years, but the "students with disabilities" subgroup has made AYP only through the Safe Harbor provision of the law. The "Safe Harbor" designation indicates that if a subgroup did not make AYP, but at least 10% of the students who were "not proficient" the previous year moved into the "proficient" range, the subgroup could make AYP under the Safe Harbor provision (U.S. Department of Education, 2002). The staff was quite proud of their accomplishment because they had increased student achievement in all areas and had recently moved off the city's "Schools In Need of Improvement" list. This change in status related to test scores was cause for celebration. It, unfortunately, also resulted in diminished funding for the school bringing about fewer resources for the school.

Lorena, the principal, committed herself to serving the needs of her students in ways that extend far beyond preparing them for the tests they will be taking throughout their intermediate school years, but as she conveyed, it is impossible to escape their influence:

It's important for the kids to do well on the tests because this is basically how every school is being rated. That's a statement that really does bother me because I don't want anyone to look at our school and say, "Okay. They're all about test scores." (Dellamora, 2009)

NCLB is grounded in the assumption that all children can achieve, the achievement gap can be closed, and can best be achieved and measured by holding schools accountable via standardized testing. Locally imposed initiatives resulting from the national NCLB policy have also forced Lorena to operate under a “politics of universalism” (Larson & Ovando, 2001) that dictates that all students in all schools and all subgroups will take and be judged by tests that will determine the fate of students, staff, and school.

Through extensive interviews with many teachers, it became clear that, though there was an agreement with the need for some testing, the overwhelming focus on the test itself has driven teachers away from attending to the core needs of students in the context of generational poverty, second language concerns, and a large population of special needs students. This has been called “the diversity penalty” because schools with a highly diverse, high need student population have intangible needs that require resources and attention that are not reflected in a test-centered paradigm. One teacher, Jason, offered insights into the range of learning needs of his students that are not honored and valued by NCLB and therefore not measured by the all-important tests. NCLB requires that all students achieve proficiency on standardized tests and use this as the primary indicator of successful schooling. Although second grade is not a mandatory year for standardized testing, Jason was required to test his children *every week* under the *Reading First* program as mandated under NCLB. Jason comments on what matters to him as a teacher that is not measured by the tests:

It’s a lot of intangible stuff. Like with one of my students, Pedro. I noticed that when he makes mistakes or when he gets into a fight or something like that, he always tells me the truth. He always tells me how he’s feeling about it. He’s always willing to take risks or to look silly or to make mistakes. Telling the truth is important. And knowing it’s okay to be wrong. I think it’s really important to see which kids are willing to make mistakes because there’s something creative that’s attached to making mistakes. With all these tests, somehow we’re not looking at what kids are gifted at. We’re not looking at the way kids are creative and the way kids are gifted. We’re expecting them to fit in a very rigid box. Tests don’t measure the important things. How can a test measure honesty? Creativity? Taking risks? Making mistakes? Not with a test. You can’t. (Dellamora, 2009)

Jason has tried to find value in these tests but asserts that testing time takes away from “what we’re supposed to be doing in reading.” When speaking of the tests, he says several times that “they’re not useful” and adds, “I don’t feel that they’re really that relevant.” Jason believes that his role as a teacher is to expand educational opportunity for his students and to teach important character skill (*dispositions* in the Thinking Schools model) in addition to essential skills in the content areas. Rather than continue to repeatedly test his students, Jason would prefer to spend more time developing social skills and providing the “serious intervention” that his students need based on the observations he

makes as they read and write. Again, in the Thinking Schools design, the focus on deep processing and higher order thinking is key to reading comprehension and writing process. He feels that his own observations are of greater value than the data he receives in the form of printouts and testing sheets. Frustrated by this external imposition of content that often does not match the needs of his students, Jason is overwhelmed by the significant volume of testing that he feels has little value. Jason finds himself in an uncomfortable position and says, "I do the tests because I have to do them." The bulk of time in his classroom is dedicated to preparing for and taking tests while he tries to fit in time for what he believes his students need to learn in the minutes and seconds that he is able to carve away from his mandated curriculum that is required in order to prepare students for the tests to come. Jason qualifies these negative statements about the tests by pointing out his concerns for the overemphasis on the finite areas measured by the test and the reduced value of his own professional judgment:

I want to make it very clear that I don't think that there is no value in the tests. I really don't think that, but they are just so incomplete. They are dangerously incomplete in my view because we're talking about raising a child here. (Dellamora, 2009)

In the era of high stakes testing and under the shadow of NCLB, the numbers produced by a weekly computer printout are of greater importance to the Department of Education than what Jason has to say about his students.

Go up the grade levels a bit, and we find a fifth grade teacher, Kara. She and her students are subjected to the imposition of standardized tests three to four times a year. All students must take the social studies, English Language Arts, and mathematics tests. All English Language Learners are required to take an additional test, the New York State English as a Second Language Achievement Test (NYSESLAT). Never more than 2 months pass in Kara's classroom when a test is not on the immediate horizon.

I hate test prep. It doesn't help. It's a waste of time and I wish I could take it away. More than it just being a waste of time. More than it being nonproductive. It literally saps away the time where you could be productive. (Dellamora, 2009)

Kara was never hesitant to express her frustration about the tests that are a constant presence in the limited time she and her students must dedicate to a process that is disconnect from deep learning, the facilitation of thinking, and the contextualization of teaching and learning in our society. Previous to the emphasis on high stakes tests, Kara received national awards for the amazing technology projects that she and her students were working on. Hearing of Kara's success, other teachers would come to her school to learn from Kara and her students. Unfortunately, there is no longer room for such opportunities in her curriculum. The previous school principal and administration felt that the visitors from other schools who came to observe the success in Kara's classroom had become a distraction to teaching and learning and no longer permitted

such cross-fertilization within the teaching profession. Not only were Kara's students becoming isolated within the box of testing, but also her life as a teacher was being boxed in.

NCLB set out to measure student learning and teacher effectiveness through its systematic use of standardized tests. Yet, in Kara's classroom, much of her innovative teaching has been replaced by lessons engineered to prepare them for performance on standardized tests, and the learning that is taking place is most often in service of the tests. Kara does find time to sneak her innovative methods in, as she did with an impromptu lesson on the hazards of filling our bodies with the chemicals that are found in soft drinks. Her students listened with rapt attention as Kara taught, digging deeply into an analysis of the label on a soda bottle, identifying the effects many of the ingredients would have on the body of a young child. This area of inquiry is essential to the Thinking Schools design and engages students in questioning about important issues in their lives. Several times she looked at me with a look of confused guilt on her face, conflicted between the stack of test prep packets on the table by the door and her intuition to continue with the lesson that had the potential to change the lives of her students through its impact on their health. This internal conflict, from my experiences in working in schools around the country, continues to be a source of anxiety in 2014.

Given the increase in test preparation and its increasing role in driving classroom instruction, the validity of these tests ought to be questioned. If the purpose of tests is to measure the academic learning of students and the effectiveness of teaching, how can performance resulting from overt and explicit test preparation be helpful in assessing curriculum mastery? Standardized tests at The School of Academic Excellence and thousands of others like it no longer measure student learning in various subject areas. Instead, they are a measure of the quality of test prep programs, and are, unfortunately, leading to instances or the temptation of cheating by students, teachers, and school and district leaders.

Consequently, test preparation programs and practice tests take time away from valuable learning within and across the content areas and negate the underlying purpose of such tests, which is to measure student learning. As a result of the high stakes attached to tests, teachers in this school found that there is increasingly less time for teaching the content, skills, and strategies that students actually need to learn. Instead, they feel pressured into using prepared tests that no longer measure what they were originally intended to measure. While the expansion of the new Common Core State Standards heralds the possibility of a shift in emphasis toward thinking and not simply superficial content learning, it has brought with it a renewed emphasis on testing. Although schools are being encouraged to include alternative measures of assessment in their determination of student progress, schools and teachers are still largely being judged by the results of a single measure. Such pressure has the danger of focusing attention on improving test-taking abilities and test scores but diverting attention away from the educational opportunities the Common Core State Standards are *intended* to promote.

NCLB is based on the assumptions that all students can learn at the same level, based on age, and that the achievement gap can be closed by focusing on academic achievement. A secondary set of assumptions underpinning this

policy is that greater equity in achievement can be attained by establishing high standards, hiring highly qualified teachers, and holding schools and students accountable for learning on standardized tests (U.S. Department of Education, 2005; U.S. Department of Education: National Center for Education Statistics, 2003). The findings of my study reveal that there is a serious disconnect between what is assumed and mandated by NCLB and the lived realities and actual needs of the students this policy purports to serve. As a result, the teachers at The School of Academic Excellence struggle to make sense of and balance the demands of this achievement only policy and the needs of their students. The principal and teachers at The School of Academic Excellence simply did not have the luxury of focusing on academic achievement only because the forces of poverty directly impacted their abilities to do so.

Racially and economically diverse schools with greater numbers of subgroups simply have more opportunities to fail. In Philadelphia, for example, many of the district's larger and more diverse schools failed to make AYP, while 24 of the 25 more homogenous and smaller schools managed to do so with ease (Socolar, 2004). While some view this "diversity penalty" as a necessary component of the Act that will bring attention to the achievement gap and result in improved instruction, resources, opportunities, and achievement for those within more diverse schools, others see the situation differently. According to Socolar (2004), "critics of the NCLB 'diversity penalty' say that it creates incentives for schools and districts to segregate their students to minimize the numbers of subgroups represented in individual schools. It may also create an incentive to underreport or reclassify students and avoid having to count the data for a subgroup" (p. 3).

Research on the actual activities within classrooms demonstrates growing differences in the practices and pressures of teachers in high versus low poverty school settings. According to a study by Moon, Callahan, and Tomlinson (2003), teachers working to increase student achievement in high poverty settings spend 75% more time on test preparation, feel more pressured to bring up their students' test scores, and feel more threatened professionally. If the aim of the law is to increase overall student achievement and to close the achievement gap, attention must be given to how *achievement* is being defined. According to NCLB, achievement is best measured by test scores. Many researchers would argue that achievement cannot and should not solely be defined by test performance, yet this is the foundation that NCLB stands on. Through its emphasis on testing, NCLB is influencing education in many ways. Limiting an evaluation of its effectiveness to exclusively data-driven student achievement on close-ended test items, limits the expectations of all students. If the Act is intended to improve opportunities for all students, especially poor students of color, we need better insight into how this policy and the perception of achievement are being interpreted by educators and how these interpretations are impacting the education of the children NCLB aims to serve.

Complicating the growing body of literature related to the achievement gap further are the arguments of the late Asa Hilliard, Gloria Ladson-Billings, and other researchers who contend that the achievement gap has been inappropriately labeled. Hilliard (2003) suggests that differences in achievement are best

described as “opportunity gaps” that exist between poor children of color and their more privileged peers. Hilliard states that efforts to improve student achievement need to be directed toward addressing the differences in students’ life opportunities, which limit their real opportunities to achieve, asserting that “some critics of public education obscure the work of public education in order to divert attention from the larger matters of income inequality and inequality and inadequacy in the provision of resources for schools” (p. 141). According to Hilliard, unless inequalities in opportunity are addressed, there is little hope for improved achievement for children living in impoverished communities.

Similarly, Ladson-Billings (2006) disagrees with the label of “achievement gap,” arguing that the “all-out focus on the ‘Achievement Gap’ moves us toward short-term solutions that are unlikely to address the long-term underlying problem” (p. 4). According to Ladson-Billings, the achievement gap would be better labeled as a long-term “education debt” that has accrued over time as a result of America’s long history of unequal treatment of minority and impoverished citizens.

Not only does the achievement gap continue to exist between racial and socioeconomic class groups, but also the overwhelming focus on tests is negatively impacting teaching and learning for *all* students. This overemphasis on testing and data is not only seen at the local level. It is replicated both at the school and classroom level and at the federal level as well. The art of teaching children seems to have been lost in this drive for accountability and achievement—a frightening indicator of the ways in which federal policy has turned schools into factories dedicated to test preparation and performance. Somewhere, in all this, the children have, in fact, been left behind.

THE LARGER GAP: BETWEEN THE 20TH AND 21ST-CENTURY DEFINITION OF KNOWLEDGE ■

When thinking toward preparing 21st-century learners, we must focus on what policies will be put in place in this century *and* consider how those policies will ultimately play out in practice. Howard Gardner (2010), Professor at Harvard School of Education and well-known for his theory of multiple intelligences, reflects on such pivotal times in the history of U.S. schooling: “At such times, we can no longer just carry on as before: we must consider whether fundamental changes may be in order” (p. 9). Although there are many who continue to argue that the primary importance of public schooling is to develop academic content knowledge, there is a rapidly growing force of leaders in business, education, and government, in addition to parents and communities, who argue for an explicit focus on the development of 21st century skills in public school curriculum. Trilling and Fadel (2009) argue, “The world has changed so fundamentally in the last few decades that the roles of learning and education in day-to-day living have also changed forever” (p. xxiii). They quote from Jared Diamond’s (2005) book, *Collapse*, “The crux of success or failure is to know which core values to hold on to, and which to discard and replace when times change” (p. 433).

Students in U.S. schools, like those around the world, are at a critical threshold at this time. It is the responsibility of public school systems from here in the United States to adequately prepare students for an immediate context as active and productive citizens, because these students are now entering into a world far different from the one even of our most recent past. The future is now. At this current pivotal moment in the history of public schooling in the United States, “Educators are faced once again with a daunting challenge: this time, it is to equip students with 21st-century skills. Critics oppose the idea on the grounds that emphasizing skills such as critical thinking and problem solving will erode the teaching of important content, including history and literature” (Brandt, 2010, p. ix).

If the ideas of such critics prevails, U.S. students are at risk of falling victim to the limits of academic curriculum if core content knowledge is to take precedence over or exclude deliberate efforts toward 21st-century-skill development. The results for the 2006 Programme for International Student Assessment (PISA) revealed startling data about U.S. student performance—out of 40 countries, U.S. students ranked 35th in mathematics and 31st in science. Compared only to themselves, U.S. students showed a significant decline from the 2003 PISA results. U.S. students were also found to have the lowest scores on the problem-solving items in all categories (Darling-Hammond & McCloskey, 2007). Graduates of U.S. public schools are simply not on par with their peers internationally and the typical outdated, traditional curriculum in the United States is simply not sufficient for future citizens of the 21st century.

Kay (2010) poses an argument for the integration of content knowledge and 21st-century skills, focusing particularly on a counterargument for those who claim that developing 21st-century skills would replace or compromise the acquisition of content knowledge:

Rigor traditionally is equated with mastery of content (core subjects) alone, and that’s simply not good enough anymore. Knowledge and information change constantly. Students need *both* content knowledge *and* skills to apply and transform their knowledge for useful and creative purposes and to keep learning as content and circumstances change. (p. xxiii)

Kay continues with the clear difference between 20th- and 21st-century learning demands:

In the United States, we tell students the same thing a hundred times. On the 101st time, we ask them if they remember what we told them the first hundred times. However, in the 21st century, the true test of rigor is for students to be able to look at material they’ve never seen before and know what to do with it. (p. xxiii)

The argument continues to surface again and again, yet there seems to be an obvious pathway if our intent is to truly prepare students for productive life in the 21st century. Perhaps Lemke and Coughlin (2009) frame it best when they

put forth two possible options for the future of our schools and the young learners within them:

We can either leverage the democratization of knowledge and the power of participatory, authentic, and multimodal learning in the service of our students, or . . . we can continue with current practice and careen down a path to irrelevancy. (p. 59)

The second option would most certainly qualify as educational malpractice. It is simply unacceptable that we might consider subjecting learners in the 21st century to an education that would so inadequately prepare them for life. It is the responsibility of parents, educators, and policy makers to ensure that the students of today are the citizens of tomorrow. They simply need the knowledge and tools to do so.

The following sections of the chapter define the “knowledge” we need to arm students with by clarifying what is meant by 21st-century skills and by suggesting one powerful “tool” easily implemented in schools that operates efficiently and effectively to privilege learners with rigorous, balanced development of both content knowledge and 21st-century skills.

WHAT IS 21ST-CENTURY LEARNING? ■

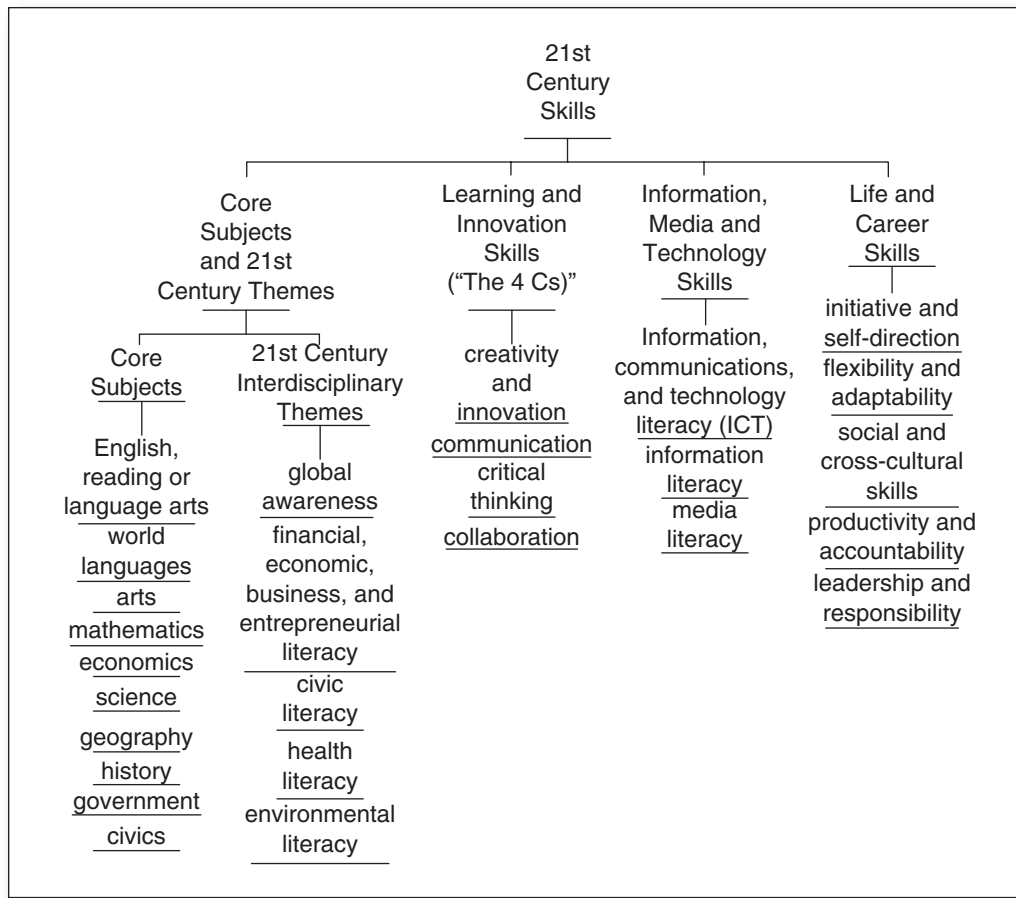
To prepare students for productive life in the 21st century, we must first define what demands will be placed on the citizens of an increasingly global world that has technology and global human interaction at its core. NCLB directed attention to the importance of technology literacy, but does not address the full range of capacities that are essential for success in life and learning in the 21st century.

Several prominent groups have surfaced frameworks for 21st-century skills. These groups include the North Central Regional Laboratory (NCREL) and the Metiri Group, the Organization for Economic Co-Operation and Development (OECD), the National Leadership Council for Liberal Education and Promise (LEAP), and the Partnership for 21st Century Skills (Dede, 2010).

Of all these groups, the framework put forward by the Partnership for 21st Century Skills is the most detailed and is widely accepted as a leading voice in this work and, therefore, is the framework that is detailed here.

The Partnership’s Framework (2006) targets four broad categories and the support structure that are identified as critical to the development of 21st-century skills: Core Subjects and 21st Century Themes; Learning and Innovation Skills; Information, Media, and Technology Skills, including Information, Communications, and Technology (ICT) Literacy; Life and Career Skills; and the 21st Century Support System that is necessary to support students to master the skills and abilities required of them for productive life in the 21st century. All these outcomes can only be realized if our schools evolve in a way that leaves behind old paradigms and move operationally, pedagogically, and philosophically to embrace the foundations that underlie the new paradigm of schools that prepare students for the 21st century: Thinking Schools.

Figure 2.1 Tree Map of Partnership for 21st-Century Skills Framework



Source: Adapted from [AUTHOR: PLEASE PROVIDE FULL SOURCE INFORMATION.]

<Authors: the URL provided as a source for this figure is defunct. Please provide as much source information as is available including the author name, the year in which the figure was posted, the title of the article in which it appeared or the section of the web site that houses it, the organization that publishes the web site, and the city in which that organization is headquartered.>

■ THINKING SCHOOLS INTEGRATED PATHWAYS

Visual Tools for Thinking, Dispositions for Mindfulness, Questioning for Enquiry

Thinking Schools deliberately and intentionally work to develop in students a problem-solving disposition that honors deeper and more reflective knowledge. Thinking Schools provide a unique balance, merging the importance of core academic knowledge and the dispositions for learning required for success in navigating challenges of the 21st century. Models for thinking, such as Thinking Maps, used throughout the chapters of this book, can facilitate the shift from the current, narrow focus of many schools on content knowledge to a more inclusive focus that includes development of the 21st-century skills that will allow us to avoid falling victim to intellectual apartheid and work to meaningfully eliminate the achievement gap. Imagine how different the schools of post-apartheid South Africa would have been had they had a common visual language for thinking and learning that could have transcended the 11 national languages that diluted classroom instruction as

I was able to access this source at the following Partnership for 21st Century Skills website: <http://www.p21.org>

teachers and students worked to make meaning? More so, this tool set has the potential to transcend the kinds of barriers put in place by apartheid that did not disappear with deKlerk's decree of the end of apartheid in South Africa in 1992. According to Hyerle (2009),

Visual tools are also used across cultures and languages and may become keys to new levels of more democratic participation in human systems. Across traditional cultures and new "virtual" cultures, visual languages ultimately may be used for uniting diverse and distant learning communities as people in schools, communities, and businesses and in different countries *seek to understand* each other through *seeing* each other' thinking and perceptions through multiple frames of reference. (p. xix)

A teacher cited by Trilling and Fadel (2009) helps us see this more clearly as she made the shift from a content-based instructional model to one that focused on developing thinking skills: "I had to unlearn the idea that teaching was about my content; I had to learn that it was about their thinking and their skills" (p. 39).

Further, Brandt (2010) argues, "Effective teaching involves students *using* skills to acquire knowledge" (p. ix). Visual tools, in general, and Thinking Maps, in particular, can do just that—"visual tools escalate the speed and efficiency with which an individual can identify new knowledge and connect it to what is already known" (Marzano, 2009, p. viii). It is time to "move beyond an antiquated view of isolated information and knowledge and realize, in the research and classrooms, that we are working with a very different mindset and set of student expectations than what existed 50 years ago" (Hyerle, 2009, p. 9).

Thinking Maps, along with the simultaneous development of Habits of Mind (Costa & Kallick, 2000), inherently foster the development of 21st-century skills. Competence in each of the five categories of the Partnership for 21st Century Skills' Framework is rapidly elevated to a high level of proficiency within schools and classrooms led by adults who are committed to developing a system for language, learning, and thinking. Each of the following sections illustrates examples of ways in which Thinking Maps can be used as a tool to both develop and assess 21st-century skills.

Even before 21st-century skills were formally named and prior to the Common Core State Standards explicitly identifying cognitive skills as being essential additions to current school curriculum, students fluent in the use of Thinking Maps were already demonstrating aptitude in these areas. Through even the most basic applications of Thinking Maps, the nature of the model itself requires the kind of sophisticated thinking inherent in 21st-century skills. More complex uses of the Maps for collaboration, questioning, and inquiry round out the full complement of 21st-century skills that Thinking Maps support. Each of the following sections includes a range of examples from across elementary, middle, and high school classrooms.

1. Core Subjects and 21st-Century Themes

Our world grows increasingly smaller and, at the same time, more complex as a result of the interconnectedness resulting from new technologies.

Consequently, 21st-century knowledge is also inclusive of content that has not historically been represented in traditional school curriculum. Our world is also changing at an alarming rate, and a new set of content knowledge is required to successfully navigate life on our ever-changing planet. Today and into the future, students need a solid foundation in 21st-century core subjects that will promote understanding in areas such as global issues, financial literacy, health issues, and environmental awareness. These are areas that are becoming increasingly important for individuals to be aware of as our lives become more complicated and interconnected with others.

The core subjects recognized by the Partnership are identical to those identified in NCLB: “English, reading or language arts; mathematics; science; foreign languages; civics; government; economics; arts; history; and geography” (www.p21.org). If the focus of teaching and learning were to remain just here, students would be victimized by the aforementioned intellectual apartheid. The Partnership, like other similar groups putting forth frameworks for 21st-century learning asserts that there is for more learning required for success in this new millennium. These emerging content areas that have been previously overlooked, or deemed unnecessary, include global awareness; financial, economic, business, and entrepreneurial literacy; civic literacy; health and wellness awareness; and environmental literacy. Understanding of these areas is critical to success for college, career, and independent life once students leave home and take on their expected adult roles of contributory citizens to this democracy we live in. These are content areas that are currently not emphasized in schools

This category of skills in the Partnership’s Framework focuses on the fundamental content knowledge essential for students in the 21st century. The core subjects listed in the previous section on 21st-century skills are currently emphasized heavily in schools today, sometimes to the exclusion of other 21st-century skills. In addition to adding to the current repertoire of core subjects, 21st-century schools need to consider the ways in which students will be expected to use this broader base on core subject knowledge. Twenty-first-century learners will no longer be responsible for solely learning the content of the core subjects; they will need the skills to be able to think *about* that content in sophisticated ways. The use of Thinking Maps is designed to help students meaningfully access, retain, and recall content knowledge and move fluidly between and among, for example, the complex range of thought framed by Bloom’s Taxonomy (Anderson, et al., 2001). Since the maps store information the way the brain does (Wolfe, 2011, xiii), learners are able to dedicate more thoughtful energy toward the information being learned. Because the use of Thinking Maps requires that students represent their thinking visually, they automatically engage with the content in deeply rigorous ways that extend far beyond basic recall. In 21st-century learning, the objective is no longer simply about acquiring the content knowledge but about having the ability to use that knowledge.

Students quickly come to realize the value of these tools and self select to use them as resources to support their own learning. Perhaps the most powerful self-directed use of the Maps is seen in a student’s use of the Maps to study for her Advanced Placement Biology exam. Fluent in the use of the Maps after

years of use in her public school experiences at Adlai Stevenson High School, near Chicago, the student took it upon herself to create hundreds of Maps representing the content of her entire high school biology textbook. Her maps not

Figure 2.2 Student Note-Taking High School AP Biology Textbook Tree Map

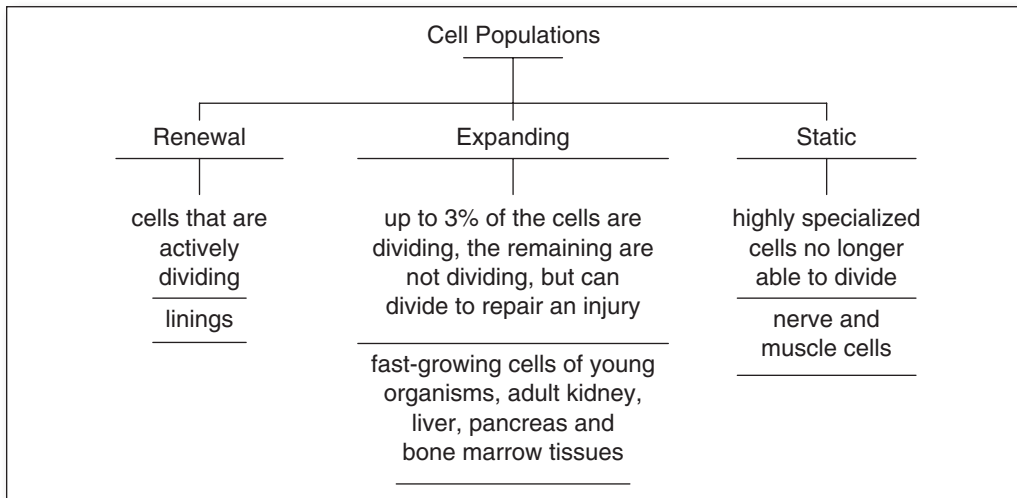


Figure 2.3 Student Note-Taking High School AP Biology Textbook Double-Bubble Map

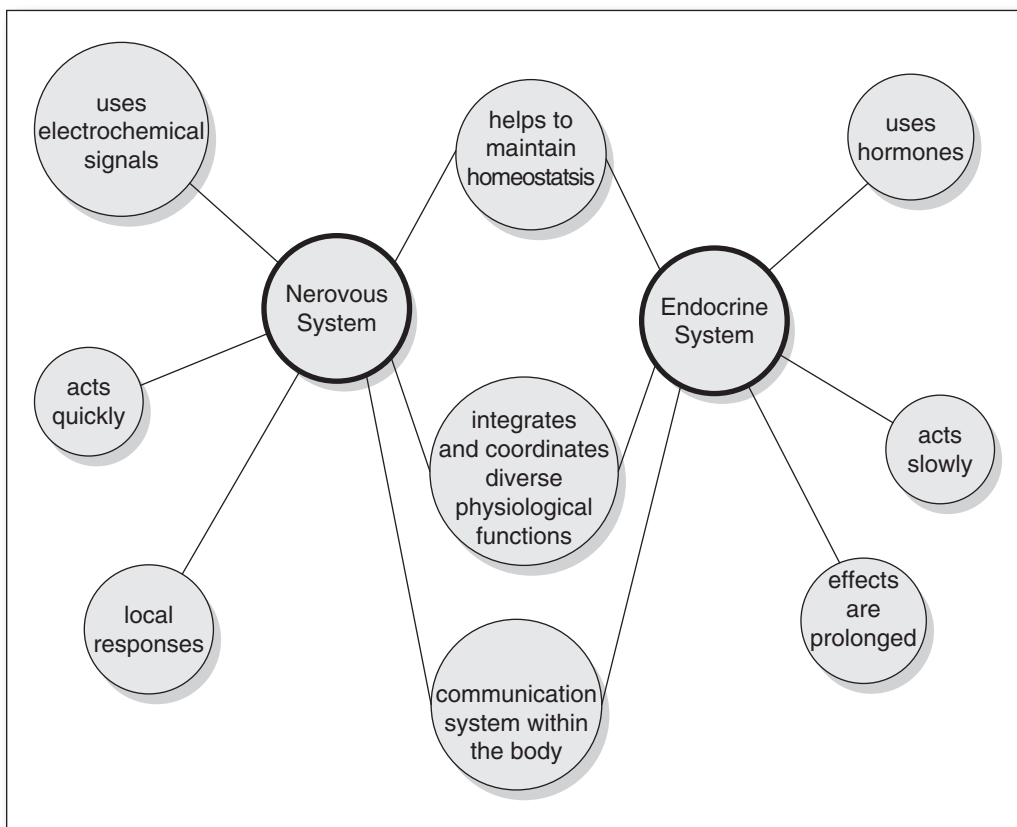
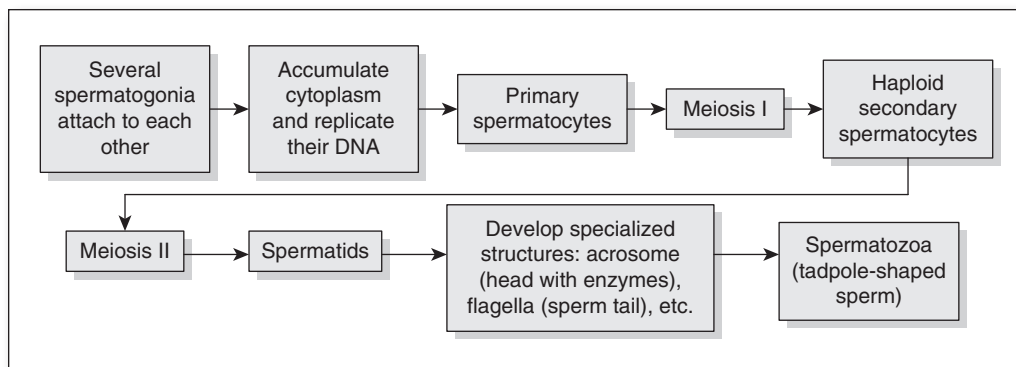


Figure 2.4 Student Note-Taking High School AP Biology Textbook Flow Map

only helped her recall important information, but representing the information visual cognitive patterns also immediately engaged her in processing the information on a more analytical level.

Another brilliant example of student application of the maps comes from the sophisticated thinking around health awareness that was brought to my attention by a high school physical education teacher at the Bronx Academy High School in New York City. This school is a last resort of sorts for high school students who have dropped out of or been removed from other high schools in the city. Many of the students are over-aged, and all have faced significant challenges both in their academic history and in their lives outside school that have resulted in their registration at this site. Thinking Maps have been used as a tool to support this community of learners who are typically in attendance only long enough to recover the credits they need to graduate.

During one of my visits, the main hallway was decorated with dozens of large presentation boards that were filled with the research students had done in connection to the final projects for their health class. As I walked through the gallery, one caught my eye more than the others. The Map that was featured at the center of the board was a Tree Map with one branch that extended three times farther down the paper than all the others. As I looked at the awkward looking Tree that looked more like a cross, the teacher approached me. As we discussed the Map, she called the student over to explain his logic in not breaking the overly long category down into multiple, smaller categories. It turns out that the design of this Tree Map was very intentional. The student had conducted research on a variety of drugs commonly used in the local community—alcohol, tobacco, marijuana, cocaine, and heroin were all included in the Map. The branches that stretched down the paper laid out for the viewer all the serious outcomes related to each of the various drugs. The branch representing the effects of heroin use stretched far beyond the length of the others. Explaining his reasoning for not breaking each branch of outcomes for use of each drug into subcategories, the student explained passionately, “But, Miss! That sh—’s baaaaaaad! Heroin is bad sh—, man. People gots [sic] to know, Miss! People gots [sic] to know!” Not only did his use of the Tree Map allow him to make better sense of his research, his use of the visual tool allowed him to clearly and

emphatically communicate his message to others. A clear demonstration of 21st-century-skills thinking. The student was not content to simply regurgitate the information he learned; he was able to do something with that information and present it in a way that showed his deep thinking *about* the information.

2. Learning and Innovation Skills

In addition to massive revision to the content of school curriculum, the Partnership (2006) emphasizes in its framework that learning and innovation, or thinking, skills must also be redefined. Not only must students of the 21st century be able to learn academic content, but they also need to know how to keep learning new information, unlearn what becomes discredited, and use what they have learned in innovative and effective ways. Trilling and Fadel (2009) quote Alvin Toffler who asserts that “the illiterate in the 21st Century are not those that cannot read or write, but those that cannot learn, unlearn, and relearn” (p. xxxiii). Rote knowledge of core subjects is no longer enough. Students today need to have the skills and abilities to “transform information into knowledge” (Hyerle, 2009).

This new generation of learning and thinking skills that are not currently taught in schools include the development of skills required for critical thinking and problem solving, communication, creativity and innovation, collaboration, information and media literacy skills, and contextual learning. Such Habits of Mind (Costa & Kallick, 2000) depart significantly from those that follow traditional trends of schooling. “Conventional, 20th century K–12 instruction emphasizes manipulating predigested information to build fluency in routine problem solving rather than filtering data derived from experiences in complex settings to develop skills in sophisticated problem finding” (Dede, 2010, p. 53). Among the dispositions of a learner that today’s Common Core State Standards require is that students be equally adept in *asking* questions as they are in answering them.

Central to success in the 21st century is the ability to move beyond content knowledge. Learners need not only to master the content, but they also need to be able to use the content and to keep learning. The 21st century brings forth a new set of demands on individuals for communication, collaboration, thinking, and problem solving. Students who are fluent in the use of Thinking Maps learn very quickly how to take content “off the Map” both orally and in written format, making it easier for students to share their thinking. The basic design of each Map facilitates the sharing of content with ease—the oral or written presentation simply aligns with the structure of the Map.

In Chapter 7, DeSiato and Morgan share an example of how Maps become tools for higher-level thinking. In their district, the use of Thinking Maps evolved from “What **map** do we need to use?” to “What *thinking* do we need to solve this problem, deepen our collective understanding or to develop shared understanding and create new knowledge?” This shift demonstrates how metacognition—thinking about our thinking—plays a significant role in the use of Thinking Maps. Such metacognition is essential for the critical-thinking and problem-solving demands of the 21st century. It is expected that this will soon be reflected in standardized tests used to measure student

achievement. In the near future, with the onset of the Common Core State Standards being adopted by nearly all the states, traditional, multiple-choice-oriented standardized tests are expected to be replaced with tests that largely call on students to demonstrate their knowledge through performance tasks that require critical thinking and creative problem solving (www.parcconline.org; <http://www.k12.wa.us/SMARTER/>). These performance tasks will require students to explain the process of their thinking as they develop a solution to a problem and not simply present the solution to the problem, independent from the context of the problem-solving process.

3. Information, Media, and Technology

Collaboration and communication skills are also markedly different in the 21st century. The Internet has connected people who would otherwise never interact with one another. Suddenly, the distance across states, countries, and even around the globe has been reduced to a series of simple keystrokes. This global interconnectedness places new demands on socialization and communication. Suddenly, we need to understand and get along with people who might look or hold beliefs quite different from ourselves. Johnson and Johnson (2010) go so far in their argument for the importance of explicitly teaching students how to collaborate, they argue that “any teacher who does *not* use cooperative learning or relies solely on telling students to ‘collaborate’ may be considered not fully competent” (p. 237).

The learning environment in which such skills can be nurtured differs radically from most classrooms today. McTighe & Seif (2010) refer to a large-scale study by Pianta et al. (2007). According to the study in which 1,000 5th graders in 737 science classrooms were observed, it was found that much elementary instruction is around learning discrete skills taught through specific lessons or worksheets. Ninety-one percent of student time was spent listening to the teacher or working alone, usually on low-level worksheets. In the study, “three out of four classrooms were described as ‘dull, bleak’ places, devoid of any emphasis on critical reasoning or problem-solving skills” (pp. 154–155). Such classrooms are inexcusable if the intent is to prepare students for life in the 21st century.

Perspective taking—the ability to consider ideas from multiple points of view—is another critical dimension of communicating effectively in today’s interdependent world, perhaps even more important than in the past given the exponentially increasing numbers of people with whom others interact in the 21st century as a result of the Internet and other communication technologies. Shifting, again, from a narrow focus on the content itself to considering how that same content might be viewed differently by some, is essential to making meaning in an interconnected world. The deliberate and intentional use of the Frame of Reference in the work with Thinking Maps gives concrete expression to this otherwise abstract, elusive idea. By literally drawing a frame around each Thinking Map and considering how the content might be altered or kept the same from different points of view, learners are challenged to move beyond their own mental maps and the set of assumptions they might have already formulated, which often, unknowingly, influence their thoughts and dictates their actions.

4. Information, Communications, and Technology Literacy

A subcategory from the Partnership's Framework (2006) is information, communications, and technology literacy (ICT). Students of the 21st century need to have the precise and evolving literacy required for success in a world that is increasingly driven by technology. Not only does technology hardware evolve at an alarming rate, but also the skills required to successfully navigate the information made available are radically different from those skills and abilities applied in other, pre-21st-century acts of literate behavior. Dede (2010) emphasizes these demands:

Due to the prevalence of ICTs, people are, for the first time in human history—inundated by enormous amounts of data they must access, manage, integrate, and evaluate . . . many of these resources are off-target, incomplete, inconsistent, and perhaps even biased. The ability to separate signal from noise in a potentially overwhelming flood of incoming data is a suite of 21st century skills not in *degree*, as with collaboration, but in *type*. (p. 53)

Hyerle (2009) reinforces the importance of developing abilities to navigate the magnificent volume of content now available almost instantaneously via massive search engines. He asserts that “one of the greatest needs we now all recognize students must have is the ability to filter vast amounts of information from the Internet” (p. 51). Unfortunately, according to Lemke and Coughlin (2009) “most children and youth don't know how to use technology as informed consumers, intelligent learners, creative producers, and effective communicators” (p. 59). It is our due diligence to respond to this 21st-century phenomenon. If we choose not to do so, we are “doing a disservice to our students” by “not supporting their development as global citizens who understood the power and responsibility that [comes] with technology” (Fisher & Frey, 2010, p. 227).

This category represents one of the fastest growing new paradigms of the 21st century. Technology becomes outdated almost as quickly as it makes its way off the shelf and into consumer's hands. Twenty-first-century skills in this realm range far beyond simply being able to utilize technology skillfully, but how to use technology and filter media responsibly. I am reminded here of a lesson I taught in a middle school classroom early in 2009 at a middle school in the Bronx, New York. The students were just being introduced to the Maps, and I observed the teacher struggling with a lesson during a walkthrough I was on with the assistant principal. I offered to conduct an impromptu lesson and chose a Map and topic I thought would be easy for the students—a Circle Map defining what the students knew about Barrack Obama. I thought this would be an easy task for two reasons: 1) Circle Maps are tools for brainstorming, so it would be an easy lesson for me to conduct without the intensive planning I usually engage in before demonstration lessons; and 2) this was a school with a predominate African American student population, and I reckoned that the students would easily be able to provide me with content to fill the Map given the recent election and considerable number of Barack Obama posters throughout the school.

The lesson proceeded smoothly, but students started to quickly share facts about Barack Obama that were quite popular media hype at the time, but largely unsubstantiated, unsourced claims. The students were confident in the content knowledge they offered up. The social studies teacher and assistant principal appeared mortified by the facts being lifted up by their students because much of the information was contradictory to those stated in the posters around the school and shared by the staff present for the lesson. I continued to fill in the Map with the information the students offered and then moved to the Frame of Reference with the assumption that the students would then surface the sources for their information that would provide more insight into the development of the students' thinking around the topic. Their "sources" included generic statements like "TV," "everyone knows that," and "he just is." At this time, it became clear to the teacher that there was a need to dedicate instructional time to recognizing varied sources, points of view, and the influence of media on information retrieved on screen and online. This ability to be a savvy consumer and to develop the habits of responsible enquiry as a critical consumer of media is an essential skill in the realm of content literacy. Explicitly identifying sources of information and critically analyzing those sources to determine relevancy, accuracy, and bias are other examples of the essential shift that has been discussed in this chapter. No longer is it enough to access information from multiple sources. With so many purveyors of content on the Internet and other media sources with no governing body to substantiate claims made, it is irresponsible to accept information without critically examining the source.

5. Life Skills

The final category of 21st-century skills identified in the Partnership's Framework are those essential life skills that have always been incorporated in pedagogy, but within this Framework, they are explicitly called out with the charge made to strategically and deliberately infuse the development of these essential skills into school curriculum. These fundamental life skills include leadership, ethics, accountability, adaptability, personal productivity, personal responsibility, people skills, self-direction, and social responsibility.

The Life Skills category of the Partnership's Framework targets the skills and knowledge that are necessary "to navigate the complex life and work environments in the globally competitive information age" (www.p21.org). These skills represent the collective behaviors that allow individuals to self-select personal actions and behaviors that will allow for both individual success and successful participation in group settings. In many schools, Multi-Flow Maps have been used for the unique task of inviting learners to reflect on the causes and effects of their behaviors in social contexts, particularly in the school setting. I share with you two examples of the Multi-Flow Map being used to assist students in learning to self-regulate their behavior in the classroom.

In a bilingual, special education classroom at PS 169 in Brooklyn, New York, a kindergarten teacher moved ahead of the typical introduction cycle of Maps and introduced the sophisticated Multi-Flow Map during the first week of school. Given the behavioral challenges she anticipated from her students, she

created three Multi-Flow Maps that hung next to her door. Each showed the causes and effects of different student behaviors. The events at the center of each of the three cause-and-effect maps were: "I have good behavior" (Pair with a large green smiley face), "I need to fix it" (Pair with a large yellow passive face), and "I need to behave" (Pair with a large red frowning face). The charts are stacked on top of each other right next to the classroom door like a stoplight, and each has a small pocket underneath it. At the beginning of each day, all children's name cards are in the pocket of the "I have good behavior" Multi-Flow Map. If students misbehave during the day, the teacher simply walks to the chart and helps the child understand how their behavior has shifted into the yellow or red zone by explaining the causes and effects of that behavior.

I have also observed a similar technique used with more mature learners in a middle school setting where much more responsibility for identifying causes and effects (consequences) of an inappropriate behavior is placed on the students. At I.S. 330, the School for the Urban Environment, Assistant Principal Terry Swords uses a series of Maps as a tool to help students reflect on their behavior. Students who are sent to the office are required to use a Flow Map to show the sequence of events that led them to the office and then create a Multi-Flow Map identifying multiple causes and effects of their behavior. Students are required to step outside their viewpoint and to include in their Map at least two causes and effects that are from their teacher's and classmates' points of view. Following the completion of the Map, the students reflect on their choices and then create a new Flow Map showing an alternate sequence of events that would not have resulted in their being sent to the office.

Figure 2.5 Multi-Flow Maps of Kindergarten Classroom Management



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Figure 2.6 Student Disciplinary Referral Form Flow Map

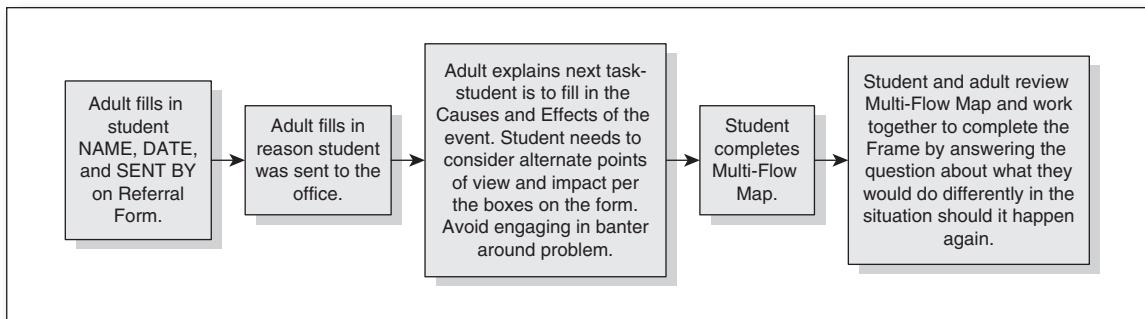
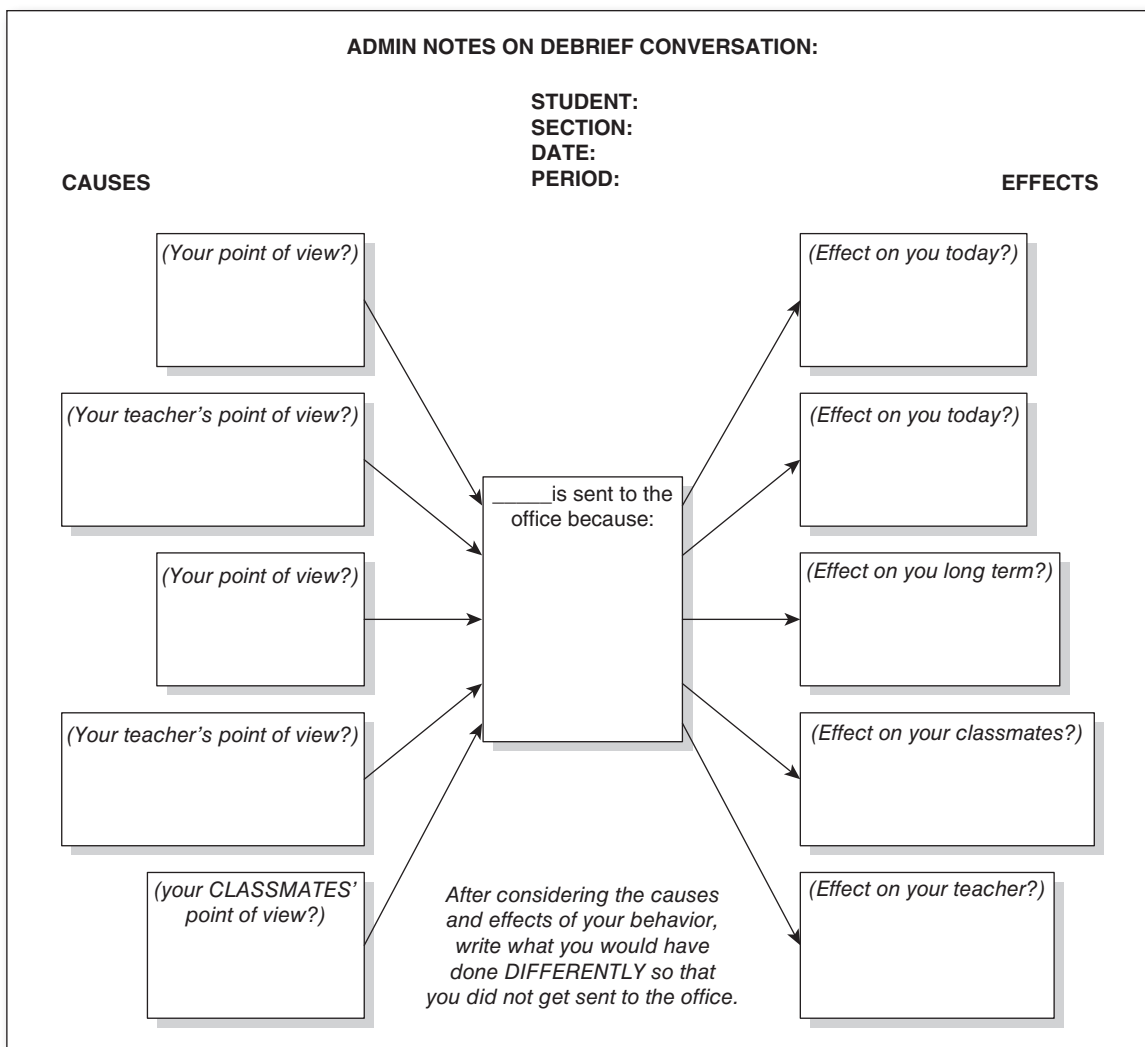


Figure 2.7 Middle School Student Disciplinary Referral Form Multi-Flow Map



The examples in both Figure 2.6 and Figure 2.7 promote the kind of self-reflective thinking required of students so that they are able to engage appropriately in social contexts with people who may be similar but are increasingly more likely to be far different from themselves. Here again, the explicit use of the

Frame of Reference associated with Thinking Maps helps learners thoughtfully and deliberately reflect on experiences from multiple perspectives, increasing the likelihood that insight of greater significance will develop from them.

CONCLUSION ■

It is clear that our schools are at a pivotal moment in their history. Our history. At this point, our students have already raced ahead of many of us into the 21st century as they instant message, text, and Twitter their way through their school years. We now need to catch up with them and work diligently to provide them with the skills they need to thrive responsibly in this millennium. It is our responsibility to use the knowledge of 21st-century skills and the tools at our disposal to reconsider the fundamental charter of each one of our public schools as we prepare our students for life outside and beyond their education.

Avoiding the insidious slide toward intellectual apartheid in education throughout the world and closing, no, abolishing the achievement gap that persists for far too many students requires a seismic shift in our educational mindset. In rethinking the charter of each one of our unique and dynamic schools, it may be that we may need to recharter the very foundation on which every school is built as a school fundamentally based on the long-term development of *every* child's thinking . . . and, thus, to courageously welcome the challenges and opportunities this century has to offer us and our young citizens.

QUESTIONS FOR ENQUIRY

In Chapter 8, retired New Rochelle elementary principal, Yigal Joseph observed, "Always remember, a child is not a test score. A literate citizenry is just a citizenry that can read. It is not a citizenry that can think." Michael Fullan has stated that "premature clarity is a dangerous thing." Dellamora raises serious issue with No Child Left Behind and other policy decisions that fail to look beyond their perhaps worthy intentions to see the potential, unintended problems such decisions will create. Articulating core values and beliefs is a necessary first step to creating a fully aligned system. Consider the decisions you make on a daily basis or that your school makes over the course of a year. What might be the values and beliefs those decisions reflect? How aligned are those decisions with the values and beliefs you or your school espouse?

How are current, prevailing ideas about what is required of a person to succeed in the 21st century aligned, or not, with some local, state, and national policy decisions influencing your educational practice?

Dellamora states that the rate of change in the world is "growing exponentially." It would be hard to argue with that statement if we only consider the items we have come to rely on for everyday use such as cellphones. In fact, to refer to them as *phones* is already antiquated. They are *mobile devices*, a nebulous enough term that anticipates they will be continually evolving and for purposes yet to be identified. All around us, everything is being reconceptualized, sometimes simply because it can, and not necessarily for the better. Conventional schooling principles, she proposes, are inadequate for preparing students for a world that is constantly changing. If the future is now unmoored, how does that require us to reconceptualize education? In what ways? What policy decisions are needed that might truly propel education forward and ensure that all students will have the opportunity to succeed in the 21st century and beyond?

■ REFERENCES AND FURTHER READINGS

- Abel, L. (2003). "Challenges to reading teachers in multilingual settings in South Africa" in *Reading for all in Africa*. Newark, DE: International Reading Association.
- Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., . . . Wittrock, M. C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York, NY: Longman.
- Bellanca, J., & Brandt, R. (Eds.). (2010). *21st century skills: Rethinking how students learn*. Bloomington, IN: Solution Tree.
- Brandt, R. (2010). Preface. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. ix–x). Bloomington, IN: Solution Tree.
- Buthelezi, Z. (2002, July). *Researchers, beware of your assumptions! The unique case of South African education*. Paper presented at the IRA Multilanguage Symposium, Edinburgh, Scotland.
- Costa, A. L., & Kallick, B. (2000). *Discovering and exploring habits of mind*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Darling-Hammond, L., & McCloskey, L. (2007). Assessment for learning around the world: What would it mean to be internationally competitive? *Phi Delta Kappan*, 90(4), 263–272.
- Dede, C. (2010). Comparing frameworks for 21st century skills. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. 51–75). Bloomington, IN: Solution Tree.
- Dellamora, E. (2009). Who cares about these kids anyway?: A case study of the impact of No Child Left Behind on educational opportunity for impoverished youth (Doctoral Dissertation, New York University)..
- Diamond, J. (2005). *Collapse: How societies choose to fail or succeed*. New York, NY: Viking Books.
- Finn, C. E., & Ravitch, D. (2007, August 8). Seeds of competitiveness. *Wall Street Journal*. Retrieved from <http://www.hoover.org/publications/digest/13870387.html>
- Fisher, D., & Frey, N. (2010). Preparing students for mastery of 21st century skills. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. 221–241). Bloomington, IN: Solution Tree.
- Freire, P. (1970). *Pedagogy of the oppressed*. New York, NY: Herder and Herder.
- Fullan, M. (2003). *Change forces with a vengeance*. London, UK: Routledge.
- Gardner, H. (2010). Five minds for the future. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. 9–31). Bloomington, IN: Solution Tree.
- Hilliard, A. G. (2003). No mystery: Closing the achievement gap between Africans and excellence. In T. Perry, C. Steele, & A. Hilliard (Eds.), *Young, gifted and black: Promoting high achievement among African-American students* (pp. 131–165). Boston, MA: Beacon.
- Hyerle, D. (2009). *Visual tools for transforming information into knowledge* (2nd ed.). Thousand Oaks, CA: Corwin.
- Johnson, D., & Johnson, R. (2010). Cooperative learning and conflict resolution: Essential 21st century learning skills. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. 201–219). Bloomington, IN: Solution Tree.
- Johnson, P. (2009). The 21st century skills movement. *Educational Leadership*, 67(1), 11.
- Kay, K. (2010). Foreword. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. xiii–xxxi). Bloomington, IN: Solution Tree.

- Ladson-Billings, G. (2006). From the achievement gap to the education debt: Understanding achievement in U.S. schools. *Educational Researcher*, 35(7), 3–12.
- Larson, C. L., & Ovando, C. J. (2001). *The color of bureaucracy: The politics of equity in multicultural school communities*. Belmont, CA: Wadsworth.
- Lemke, C., & Coughlin, E. (2009). The change agents. *Educational Leadership*, 67(1), 54–59.
- Marzano, R. (2009). Foreword. In D. Hyerle (2009). *Visual tools for transforming information into knowledge* (2nd ed., pp. viii–ix). Thousand Oaks, CA: Corwin.
- McTighe, J., & Seif, E. (2010). In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. 149–173). Bloomington, IN: Solution Tree.
- Minds of Mississippi. (2010). www.thinkingfoundation.org
- Mokhtari, K., Kymes, A., & Edwards, P. (2008). Assessing the new literacies of online reading comprehension: An informative interview with W. Ian O’Byrne.
- Moon, T. R., Callahan, C. M., & Tomlinson, C. A. (2003). Effects of state testing programs on elementary schools with high concentrations of student poverty—good news or bad news? *Current Issues in Education*, 6(8). Retrieved from <http://cie.ed.asu.edu/volume6/number8/>
- National Center for Education Statistics. (2008). *The Nation’s Report Card: Long Term Trend 2008*. Retrieved from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2009479>
- Partnership for 21st century skills. (2006). *Framework for 21st century learning*. Retrieved from <http://www.p21.org>
- Republic of South Africa. (2002). *South Africa year book 2001–2002*. Retrieved from http://www.gcis.gov.za/resource_centre/sa_info/yearbook/2001-02.htm
- Smith, F. (1993). *Whose language? What power?* New York, NY: Teachers College Press.
- Socular, P. (2004). *Education law is tougher on diverse schools. Public school notebook. Winter, 2004*. Philadelphia, PA: Public School Notebook. Retrieved from www.thenotebook.org
- Stein, B. (1975). *Rebuilding Bedford-Stuyvesant: Community economic development in the ghetto*. Cambridge, MA: Center for Community Economic Development.
- Thinking Schools International. (2011). *Growing Thinking Schools from the inside out*. Retrieved from www.thinkingschoolsinternational.com
- Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. San Francisco, CA: Josey Bass.
- U.S. Department of Education, National Center for Education Statistics. (2003). *Digest of education statistics, 2003*. Washington, DC: U.S. Department of Education. Retrieved February from <http://nces.ed.gov/programs/digest/d03/index.asp>
- U.S. Department of Education. (2002). *No Child Left Behind Act of 2001*. Washington, DC: U.S. Department of Education.
- U.S. Department of Education. (2005). *No Child Left Behind*. Washington, DC: U.S. Department of Education. Retrieved from www.ed.gov/nclb/accountability/achieve/edpicks.jhtml?src=ln
- Wagner, T. (2012). *Creating innovators: The making of young people who will change the world*. New York, NY: Scribner.
- Wolfe, P. (2011). Foreword. In D. Hyerle & L. Alper (Eds.), *Student successes with Thinking Maps: School-based research, results, and models for achievement using visual tools* (p. xiii). Thousand Oaks, CA: Corwin.