
Contents

Preface	ix
Acknowledgments	xiii
About the Author	xv
Introduction	1
SECTION I. DIGITAL AGE BEST PRACTICES	5
Digital Age Best Practice 1: Bolstering Purposeful Inquiry Through Student Questions	6
Digital Age Best Practice 2: Promoting Shared Expertise With Networked Collaboration	7
Digital Age Best Practice 3: Personalizing and Globalizing Content by Making Authentic Connections	8
Digital Age Best Practice 4: Accelerating Individual Growth Through Vertical and Horizontal Differentiation	11
Digital Age Best Practice 5: Anchoring Student Learning With Digital Age Tools and Resources	12
Digital Age Best Practice 6: Clarifying Student Understanding With Formative Assessments	13
Digital Age Best Practice 7: Implementing Student-Centered Learning Environments	14
Chapter 1. Bolstering Purposeful Inquiry Through Student Questions	18
Practical Application	19
Engage	20
Explore	21

Explain	21
Elaborate	22
Evaluate	23
Implementation Challenges	31
Grassroots Support	32
Online Professional Development	32
Staff Empowerment	32
District-Approved Curriculum	33
Summary	33
Chapter 2. Promoting Shared Expertise With Networked Collaboration	35
Practical Application	39
Implementation Challenges	43
Summer Literacy Institute	43
In-Class Modeling	44
Classroom Walkthrough Form	44
Summary	45
Chapter 3. Personalizing and Globalizing Content by Making Authentic Connections	46
Practical Application	51
Grade 3 Mathematics: Economic, Business, and Entrepreneurial Literacy	52
Grade 5 Literacy: Environmental Literacy	52
Grade 7 Mathematics: Health Literacy	52
Grade 8 Literacy: Global Awareness	53
Implementation Challenges	53
Model Lessons	53
Professional Development	54
Summary	54
Chapter 4. Accelerating Individual Growth Through Vertical and Horizontal Differentiation	56
Practical Application	61
Implementation Challenges	62
In-Class Modeling	63
Summer Institutes	63
Summary	63
Chapter 5. Anchoring Student Learning With Digital Age Tools and Resources	65
Practical Application	69
Web 2.0 Spreadsheet Applications	70

Word Clouds	70
Web-Based Videos	73
Online Simulations	74
Content Management Systems	75
Implementation Challenges	75
Summary	76
Chapter 6. Clarifying Student Understanding With Formative Assessments	78
Practical Application	79
Implementation Challenges	87
Summer Institutes	89
In-Class Modeling	89
Math Coaches	90
Building Leadership	90
Summary	91
Chapter 7. Implementing Student-Centered Learning Environments	92
Practical Application	94
Implementation Challenges	96
Summary	99
SECTION II. A CONVERGING EDUCATIONAL LANDSCAPE	101
Chapter 8. A National Perspective	104
New Teacher Evaluation Systems	106
Technology Integration Practices	107
Standards-Based Instruction	112
High-Stakes Testing	112
Webb’s Depth of Knowledge (DOK) Framework	120
Daggett’s Rigor and Relevance Framework	120
Gardner Multiple Intelligences	120
21st Century Skills	121
Summary	122
Chapter 9. The Atlantic City Experience	123
Benchmarking Process	124
H.E.A.R.T. Walkthroughs	126
Step 1: Pre-Walkthrough	127
Step 2: H.E.A.R.T. Walkthrough	128
Step 3: Post-Walkthrough	129

Step 4: Group Data Analysis	129
Step 5: Group Action Plan	131
Professional Development	132
Districtwide Articulation	134
SECTION III. IMPLEMENTATION PLAN	137
Chapter 10. Differentiated Professional Development	141
Middle School Case Study	145
Summary	148
Chapter 11. Three-Stage Model	149
Building Capacity	149
Implementation Challenges	151
Implementing Change	152
Implementation Challenges	152
Sustaining Independence	154
Implementation Challenges	156
Summary	157
SECTION IV. INSTRUCTIONAL LEADERSHIP	159
Chapter 12. 5Cs of Instructional Leadership	161
Cultivation	161
Courage	162
Creativity	163
Commitment	163
Communication	164
Summary	165
References	166
Index	173

Preface

We live in a results-now world. Seldom do we hear about a college football coach, school superintendent, or a business CEO maintaining his or her job tenure without demonstrating both immediate and measureable results impacting the bottom line. Imagine legendary figures, such as college men's basketball coach Mike Krzyzewski—who has coached four national championship teams—getting fired after posting losing records during two of his first 3 years at Duke University or IBM's CEO Louis Gerstner, who posted an average net profit of \$5.8 billion from 1994 to 2002, losing his job after his first year as CEO for generating a modest end-of-year profit of \$3 billion in 1994.

School systems nationwide are notorious for following a similar modus operandi. The craze to bolster test scores often forces districts to expend the majority of available funding as well as their collective focus to this single purpose at the detriment of other competing initiatives (e.g., 21st Century Skills, differentiated instruction, student-directed learning environments). Employing a one-size-fits-all mentality to increase student achievement may achieve limited short-term success, but its long-term ramifications often result in school systems, especially those within an urban setting, repeating a vicious cycle of continuous remediation.

Technology Use Practices

The heavy investment that schools spend nationally on digital tools and resources (e.g., laptops, interactive whiteboards, mobile devices) in the United States exceeds five billion dollars annually, yet seldom are technology solutions factored into any viable equation for improving student academic achievement. In fact, the pervasive use

of digital tools in K–12 classrooms has not changed dramatically during the past two decades. According to data released from the national LoTi® (Levels of Teaching Innovation) survey in 2012, the predominant LoTi level nationally remains at a LoTi Level 2.

At a LoTi Level 2, the instructional focus emphasizes content understanding and supports mastery learning and direct instruction. Student learning focuses on lower levels of cognitive processing (e.g., Bloom levels—remembering, understanding, applying; Webb’s levels—recall and reproduction, working with skills and concepts). Digital and/or environmental resources are used by students for extension activities, enrichment exercises, or information gathering assignments that reinforce lower cognitive skill development relating to the content under investigation.

Digital Age Best Practices

How can school systems leverage their available digital tools and resources, curriculum initiatives, and limited local, state, and federal funding to achieve academic success in their schools? There is no single variable responsible for any school system’s turnaround. Achieving success on all fronts of the curriculum and instruction spectrum requires a synergistic effort to maintain a high degree of fidelity to a common set of principles over the course of a lengthy period of time. These common principles are what I refer to as Digital Age Best Practices. These best practices include

- **Bolstering purposeful inquiry through student questions**
- **Promoting shared expertise with networked collaboration**
- **Personalizing and globalizing content by making authentic connections**
- **Accelerating individual growth through vertical and horizontal differentiation**
- **Anchoring student learning with digital age tools and resources**
- **Clarifying student understanding with formative assessments**
- **Implementing student-centered learning environments**

The term *digital age* is used judiciously to signify a set of classroom best practices that (a) can be seamlessly expanded when used in conjunction with digital tools and resources (e.g., mobile devices, interactive whiteboards, digital responders) and/or (b) apply the

principles of 21st Century Skills (e.g., critical thinking and problem solving, communication and collaboration).

The use of the Digital Age Best Practices provides a solid foundation for instructional decision making while supporting other district initiatives, such as new teacher evaluation systems, classroom walk-through protocols, academic benchmarking, differentiated instruction, technology integration, and “conventional” best practices in the classroom.

Can school systems designated as low achieving according to state and federal guidelines achieve academic excellence? Exemplars do exist that document the efficacy of Digital Age Best Practices, strategic team building, flexible professional development, and shared accountability to bring forth such dramatic improvement. One example is the Atlantic City School District in Atlantic City, New Jersey. This urban school system comprised of a 98% Title 1 population in the PreK–8 schools was designated as a high performing district by the New Jersey Department of Education during the 2011 through 2012 school year—one of a handful of urban school systems in the state to move from a “school in need of improvement” to “high performing.”

A Different Approach

This book chronicles how one urban school district, Atlantic City Public Schools, overcame institutional inertia, poverty, and gang violence to elevate student and teacher performance with dwindling federal and state financial resources through a common set of best practices known as Digital Age Best Practices. These best practices, however, are not limited to an urban setting but flourish equally well within any K–12 school system. Collectively, they can help transform static, didactic bastions of information processing into vibrant learning communities without the need for additional spending. The Digital Age Best Practices can provide value-added benefits to schools that have already invested heavily in well-conceived initiatives ranging from *one-to-x* mobile device acquisitions to a new math adoption.

The organization of this manuscript uses the common thread of the Atlantic City Public Schools as the backdrop to highlight both success stories as well as the obvious challenges embedded with implementing the change cycle. To this end, the book is divided into four progressive stages. Section I discusses each of the seven Digital Age Best Practices, including implementation challenges and their corresponding solutions, while Section II offers a broader perspective

of Digital Age Best Practices within the context of national, state, and local initiatives. Section III provides a specific road map that school systems can follow to retrofit the Digital Age Best Practices into their own unique teaching and learning paradigm. Section IV highlights specific characteristics required of instructional leaders in the 21st century to optimize the benefits of Digital Age Best Practices, resulting in increased student academic progress and improved classroom pedagogy.

A Word of Caution

The reader, however, should not be confused by the book's sequential organization. The book is far from being a "how-to" instructional manual; rather, it is a guide to both tantalize and inform the reader with suggestions, illustrations, examples, and strategies aimed at elevating the teaching and learning experience. The use of well-intentioned theories is kept to a minimum; instead, the book relies on pragmatic examples that have helped many classroom teachers engage seemingly disgruntled, disenfranchised learners. The enclosed collection of sample lesson plans, frameworks, implementation strategies, and truisms is best utilized by readers who

- desire suggestions based on actual experiences rather than on theoretical constructs,
- recognize that change can be a slow yet satisfying process, and
- are willing to do the work.

Yet, a word of caution is offered as you peruse the ensuing sections. *Don't be concerned about making too many changes too fast!* To paraphrase Dr. Robert Marzano from his speech to the New Jersey Federal Providers Association in 2012, even incremental change in teacher effectiveness can have a statistically significant impact on student achievement.

Introduction

Efforts to achieve pervasive digital age learning in our urban schools have often been thwarted by perceived competing initiatives ranging from conventional school reform efforts (e.g., Direct Instruction, Success for All) to popular curriculum models (Understanding by Design, Learning-Focused Solutions, Universal Design for Learning)—all with the hope of improving instruction and student achievement on high-stakes tests. Fortunately, powerful exemplars do exist that demonstrate digital age learning’s potential for rigorous and relevant learning experiences that target specific core content areas in math, language arts literacy, social studies, and science. One need look no further than popular educational websites, including the George Lucas Educational Foundation (www.edutopia.org), ePals (www.epals.org), and eCybermission (www.ecybermission.com) for compelling proof of digital age learning’s efficacy to promote high levels of student engagement, collaborative learning, and authentic problem solving.

What makes these digital age exemplars so engaging to students? More importantly, what impact do Digital Age Best Practices have on student academic growth in the classroom? In the current era of high-stakes testing, building and district stakeholders are looking for proven, research-based methods that have demonstrably been shown to impact student achievement. In 2001, Marzano, Pickering, and Pollock identified nine research-based instructional strategies that when implemented “correctly” produced a reported statistically significant effect size on student achievement based on standardized test measures (see Figure A).

Though these instructional strategies have been employed at varying degrees by school systems nationwide to improve student academic achievement, their collective impact on transitioning

Figure A Research-Based Best Practices

1. Comparing, contrasting, classifying, analogies, and metaphors (effect size = 1.61 or 45 percentile points)
2. Summarizing and note taking (effect size = 1.0 or 34 percentile points)
3. Reinforcing effort and giving praise (effect size = 0.8 or 29 percentile points)
4. Homework and practice (effect size = 0.77 or 28 percentile points)
5. Nonlinguistic representation (effect size = 0.75 or 27 percentile points)
6. Cooperative learning (effect size = 0.74 or 27 percentile points)
7. Setting objectives and providing feedback (effect size = 0.61 or 23 percentile points)
8. Generating and testing hypotheses (effect size = 0.61 or 23 percentile points)
9. Cues, questions, and advanced organizers (effect size = 0.59 or 22 percentile points)

Source: Marzano et al. (2001)

traditional classroom pedagogy from subject-matter-based learning to digital age learning has been minimal. Besides Marzano et al. (2001), the research community has articulated additional variables impacting student achievement, including direct teaching, advanced organizers, meta-cognition, and mastery learning, yet none have directly altered conventional classroom roles and routines.

How do school systems such as the Atlantic City Public Schools maximize their available personnel, equipment, and instructional resources to achieve unprecedented levels of student academic growth? Is there a universal set of instructional strategies that can (a) serve as a catalyst to promote digital age learning in the schools, (b) support existing district initiatives relating to literacy and math achievement, and (c) provide empirical support for improving test scores. Research has documented a common set of strategies known as Digital Age Best Practices that when applied and used in conjunction with the aforementioned instructional strategies can elevate student academic growth beyond those documented by conventional best practices alone.

The overall increase in student achievement in the Atlantic City School District mirrored improvements in other areas, including a marked increase in high school graduation rates, greater student matriculation to top-flight universities, an elevated percentage of honor students, a higher quality of instruction, and improved school climate systemwide. The high school graduation rate increased from 92% in 2006 to 98% in 2011. The percentage of top twenty students in the Class of 2011 from the minority-fed Atlantic City area increased from 0% in 2006 to 65% in 2011. Qualitative data tracking school climate, teacher efficacy, and student empowerment revealed that the vast majority of teachers, supervisors, and building administrators concurred with the current direction of the district in terms of instructional improvement.

Classroom walkthrough data at all Atlantic City School District campuses revealed similar changes in classroom pedagogy and student learning. Based on classroom walkthrough data (see Figure B), the level of student cognition in the classroom increased districtwide from a mean score of 3.23 during the 2007 through 2008 school year, representing the Understanding level of Bloom's Taxonomy, to a mean score of 3.92, representing the Applying level of Bloom's Taxonomy, during the 2011 through 2012 school year.

Similar findings were noted for engaged learning, where 2007 through 2008 walkthroughs revealed that the mean level of Engagement increased from 2.57 (students collaborating to report what they have learned with possible options) to a mean Engagement level of 3.34 (students solving teacher-directed problems) during the 2011 through 2012 school year. Students' ability to make real-world connections to the content increased significantly from a mean 3.41 (students making limited real-world connections) in 2007 through 2008 to a mean Authentic Connections level of 3.86 (students making extensive real-world connections) during the 2011 through 2012 school year.

Has an urban school system, such as Atlantic City School District, achieved all of its goals based on a single battery of state assessments? The answer is no. Student achievement scores both on criterion-referenced and norm-reference indicators need to show continued growth. The quality of teaching needs to move to higher levels of student engagement resulting in behaviors consistent with a student-directed learning environment. The level of student cognition also needs to advance to a routine level at the higher Bloom levels (i.e., analyzing, evaluating, creating). Nonachievement data relating to school climate, student and teacher satisfaction, and community support similarly need to show continuous improvement.

Figure B Atlantic City Schools Walkthrough Data

Category	2007–08	2011–12	Difference	Statistically Significant
Higher-Order Thinking	3.23	3.92	0.69	Yes $P = 0.0001$
Engage Learning	2.57	3.34	0.77	Yes $P = 0.0001$
Authentic Connections	3.41	3.86	0.45	Yes $P = 0012$
Technology Use	2.94	2.88	0.06	No

Yet, the critical attributes of many of the Digital Age Best Practices addressing collaborative problem solving, differentiated instruction, technology integration, and formative assessment practices have established a firm foothold within the collective mindset of the Atlantic City Public School’s K–12 learning community. The pervasive use of these best practices at the operational level is what gives hope to continued improvements in both qualitative and quantitative indicators in the years ahead.