

## Curriculum and Instruction: Introduction

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*Center on Instruction/National High School Center*

Many curriculum and instruction strategies can lead to school reform and improved student learning. Student performance data are integral to both; large group student data identify and support the implementation of research-based instructional programs, while student- or class-level data inform instructional changes that serve the academic needs of individual students. Data can be used to confirm whether instructional programs align with state academic standards, and ensure vertical alignment among grade levels.

Data systems should allow for the collection, interpretation, and use of data to drive instructional change at the classroom, school, district, and state levels. Additionally, data about teachers' instructional practices can help determine the fidelity of implementation in instructional programs and can supply information about professional development priorities.

Among some of the specific curriculum and instruction strategies schools might consider with an eye toward comprehensive instructional reform are:

- *Response to Intervention*, which is a multi-level instructional framework. It includes the use of universal screening for all students as well as core instruction. Students demonstrating a need for support receive increasingly intensive interventions and ongoing progress monitoring.
- *Differentiated instruction*, an instructional approach in which a teacher incorporates an array of research-based instructional and organizational practices as a means to accommodate student differences in learning.
- *Accelerated instruction*, a strategy especially useful in reading and mathematics instruction. Rather than the slow-paced and reduced curriculum that remediation models have used, in this strategy teachers accelerate instruction of students to help them overcome educational deficits and “catch-up” to their peers. The successful use of this strategy increases the likelihood that even struggling students will be prepared to enroll in challenging grade-level courses.
- *Incorporated technology* has recently received attention for its potential to support instruction in all content areas and for all grade levels.

At the high school level, curriculum and instruction are geared toward preparing students for postsecondary success. While the topics in this chapter have implications for all K-12 grade levels, four strategies specific to high

school are addressed: (1) accelerating instruction of basic reading 9-12; (2) accelerating instruction of basic math 9-12; (3) providing advanced coursework; and (4) implementing competency-based instruction.

Students who enter high school as struggling readers will most likely have a harder time in content area classes, not just in English/language arts. Most high school teachers assume students have sufficient reading comprehension levels and strategies that allow them to learn content in all classes. However, data now suggest this assumption is incorrect. High schools must provide basic instruction in reading and embed literacy strategies in all content area classes for every student to master high school content. Similarly, providing accelerated instruction in mathematics is essential for students who enter high school several grade levels behind. At the same time, high schools are challenged as they also seek ways to provide all students with more opportunities to enroll in advanced coursework.

This chapter closes with a discussion about implementing competency-based instruction, the fourth high school-specific strategy about non-traditional strategies for students to demonstrate content mastery.

## Using Response to Intervention

Center on Instruction

RTI is a multi-level framework designed to support students who are at-risk for poor learning and behavior outcomes. It includes: appropriate, research-based instruction in reading and mathematics for all students; universal screening (e.g., easily administered screening measures to identify students with mathematics, reading, and behavior problems); increasingly intensive instructional interventions for students who need them (e.g., interventions are provided for identified students for 30 minutes per day for three to five days and then increasingly more intensive interventions are provided if students make inadequate progress); and progress monitoring (USDE, 2009). An RTI framework can provide part of the data used to decide if a student should be evaluated for learning disabilities (LD).

### Action Principles

#### For State

1. Provide guidance, professional development, and technical assistance to pre- and in-service teachers and other school and district personnel on how to use RTI in academic content areas such as reading and mathematics and in behavior management with all students in all grades (Bocala, Mello, Reedy, & Lacireno-Paquet, 2009; Harr-Robins, Shambaugh, & Parrish, 2009; Sawyer, Holland, & Detgen, 2008).
2. Facilitate buy-in and collaboration by involving and training a wide variety of stakeholders at the state leadership level and encouraging similar practices at the district and school levels (Goe & Cogshall, 2007; Mohammed, Roberts, Murray, & Vaughn, 2009).

#### For District

1. Build consensus by communicating state goals to schools and vice versa, involving key stakeholders, providing administrative supports, and fostering collaboration among all educators.
2. Build infrastructure by addressing schools' RTI needs, aligning state and school roll out plans, and supporting implementation and evaluation through professional development and technical assistance (NASDSE, 2008).

#### For School

1. Focus on the essential elements of RTI: high-quality, research-based instruction for all students and interventions for struggling students, universal screening, progress monitoring, fidelity, and evaluation (Foorman, Francis, & Fletcher, 1998; Harr-Robins, Shambaugh, & Parrish, 2009; Vaughn & Fuchs, 2003; Vellutino, Scanlon, & Lyon, 2000).

### References and Resources

- Bocala, C., Mello, D., Reedy, K., & Lacireno-Paquet, N. (2009). *Features of state response to intervention initiatives in Northeast and Islands Region states* (Issues & Answers Report, REL 2009–No. 083). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Northeast and Islands. Retrieved from [http://ies.ed.gov/ncee/edlabs/regions/northeast/pdf/REL\\_2009083.pdf](http://ies.ed.gov/ncee/edlabs/regions/northeast/pdf/REL_2009083.pdf)
- Center on Instruction. (2009). *RTI CTRL: Response to Intervention classification tool and resource locator*. [Online tool]. Retrieved from <http://www.rtictrl.org/>
- Duffy, H. (2007). *Meeting the needs of significantly struggling learners in high school: A look at approaches to tiered intervention*. Washington, DC: National High School Center. Retrieved from [http://www.betterhighschools.org/docs/NHSC\\_RTIBrief\\_08-02-07.pdf](http://www.betterhighschools.org/docs/NHSC_RTIBrief_08-02-07.pdf)
- Foorman, B. R., Francis, D. J., & Fletcher, J. M. (1998). The role of instruction in learning to read: Preventing reading failure in at-risk children. *Journal of Educational Psychology, 90*, 37–55.

- Gersten, R., Compton, D., Connor, C. M., Dimino, J., Santoro, L., Linan-Thompson, S., & Tilly, W.D. (2008). *Assisting students struggling with reading: Response to Intervention and multi-tier intervention for reading in the primary grades. A practice guide* (NCEE 2009-4045). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from [http://ies.ed.gov/ncee/wwc/pdf/practiceguides/rti\\_reading\\_pg\\_021809.pdf](http://ies.ed.gov/ncee/wwc/pdf/practiceguides/rti_reading_pg_021809.pdf)
- Goe, L., & Cogshall, J. (2007). *The teacher preparation>teacher practices>student outcomes relationship in special education: Missing links and new connections*. Washington, DC: National Comprehensive Center for Teacher Quality. Retrieved from <http://www.tqsource.org/publications/may2007brief.pdf>
- Glover, T. A., & Vaughn, S. (2010). *The promise of Response to Intervention: Evaluating the current science and practice*. Guilford Press.
- Great Lakes West Comprehensive Center. (n.d.). *Annotated Bibliography of Resources: RTI Resource Box*. Naperville, IL: Learning Point Associates. Retrieved from <http://www.learningpt.org/greatlakeswest/repository/RTI%20Resource%20Box%20Table%20of%20Contents.pdf>
- Hamilton, L., Halverson, R., Jackson, S., Mandinach, E., Supovitz, J., & Wayman, J. (2009). *Using student achievement data to support instructional decision making* (NCEE 2009-4067). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.
- Harr-Robins, J. J., Shambaugh, L. S., & Parrish, T. (2009). *The status of state-level response to intervention policies and procedures in the West Region states and five other states* (Issues & Answers Report, REL 2009–No. 077). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory West. Retrieved from [http://ies.ed.gov/ncee/edlabs/regions/west/pdf/REL\\_2009077.pdf](http://ies.ed.gov/ncee/edlabs/regions/west/pdf/REL_2009077.pdf)
- Mohammed, S. S., Roberts, G., Murray, C. S., & Vaughn, S. (2009). *Conversations with practitioners: Current practice in state-wide RTI implementation. Recommendations and frequently asked questions*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from <http://centeroninstruction.org/files/Conversations%20with%20Practitioners%20Corr.pdf>
- National Association of State Directors of Special Education. (2008a & 2008b). *Response to Intervention blueprints: District level edition and school building level*. Alexandria, VA: Author. Retrieved from <http://www.nasdse.org/Portals/0/DISTRICT.pdf> and <http://www.nasdse.org/Portals/0/SCHOOL.pdf>
- National Center on Response to Intervention (NCRTI), <http://rti4success.org>
- Newman-Gonchar, R., Clarke, B., & Gersten, R. (2009). *A summary of nine key studies: Multi-tier intervention and response to interventions for students struggling in mathematics*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from <http://www.centeroninstruction.org/files/Summary%20of%209%20studies%20on%20RTI%20math%20and%20struggling%20math%20students.pdf>
- Reschly, D., & Wood-Garnett, S. (2009). *Teacher preparation for Response to Intervention in middle and high schools*. Washington, DC: National Comprehensive Center for Teacher Quality. Retrieved from <http://www.tqsource.org/publications/September2009Brief.pdf>
- Rinaldi, C., & Samson, J. (2008). English language learners and Response to Intervention. *Teaching Exceptional Children*, 40(5), 6–14.
- Sawyer, R., Holland, D., & Detgen, A. (2008). *State policies and procedures and selected local implementation practices in Response to Intervention in the six Southeast Region states* (Issues & Answers Report, REL 2008–No. 063). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southeast. Retrieved from [http://ies.ed.gov/ncee/edlabs/regions/southeast/pdf/REL\\_2008063.pdf](http://ies.ed.gov/ncee/edlabs/regions/southeast/pdf/REL_2008063.pdf)
- Scammacca, N., Vaughn, S., Roberts, G., Wanzek, J., & Torgesen, J. K. (2007). *Extensive reading interventions in grades k–3: From research to practice*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from <http://www.centeroninstruction.org/files/Extensive%20Reading%20Interventions.pdf>
- Tackett, K. K., Roberts, G., Baker, S., & Scammacca, N. (2009). *Implementing Response to Intervention: Practices and perspectives from five schools. Frequently asked questions*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from <http://centeroninstruction.org/files/Implementing%20RTI%20Practices%20&%20Perspectives%20of%205%20Schools.pdf>

- Torgesen, J. K. (2006). *Intensive reading interventions for struggling readers in early elementary school: A principal's guide*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from <http://www.centeroninstruction.org/files/Principal%20s%20Guide%20to%20Intervention.pdf>
- United States Department of Education. (2009). *Implementing RTI using Title I, Title III, and CEIS funds: Key issues for decision-makers*. [PowerPoint slides]. Retrieved from <http://www.ed.gov/programs/titleiparta/rtifiles/rti.ppt>
- Vaughn, S., & Fuchs, L. S. (2003). Redefining learning disabilities as inadequate response to instruction: The promise and potential problems. *Learning Disabilities Research and Practice, 18*(3), 137-146.
- Vellutino, F. R., Scanlon, D. M., & Lyon, G. R. (2000). Differentiating between difficult-to-remediate and readily remediated poor readers: More evidence against the IQ-achievement discrepancy definition of reading disability. *Journal of Learning Disabilities, 33*, 223–238.



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## Choosing and Implementing Technology Wisely

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National High School Center

The effective integration and implementation of educational technology is critical to ensure that these tools can make a difference in the academic achievement of all students. These ever-changing technologies include computers, mobile/handheld devices, interactive white boards, social media and multimedia tools, simulations, and games. Research indicates that technology must be used in ways that align with curricular and teacher goals, and offer students opportunities to use these tools in their learning. The findings from a National Research Council report underscored this point, “In general, technology-based tools can enhance student performance when they are integrated into the curriculum and used in accordance with knowledge about learning. But the mere existence of these tools in the classroom provides no guarantee that student learning will improve; they have to be part of a coherent education approach” (Bransford, Brown, & Cocking, 2000). As technology tools continue to evolve, their role in teaching and learning can follow various paths, including computer-based assignments and plans; online/distance learning courses; assessment; research-based educational programs (software and internet-based); and a growing number of online and stand-alone resources and tools.

Growing evidence supports the use of educational and assistive technologies (AT) to enhance teaching and learning for students with disabilities. Over the past ten years, there has been a significant growth in AT tools to provide students with assistance in acquiring reading, writing, and mathematics skills. These AT tools enable students with disabilities to perform tasks that they might not otherwise be able to do on their own. For example, text to speech supports students with print-related disabilities, alternative input devices support computer use for students with physical disabilities, and augmentative communication devices provide support for students with communication disorders.

Research and needs assessments conducted by the National Center for Technology Innovation (NCTI) and the Center for Implementing Technology in Education (CITEd) have led to the creation of two decision-support tools, *The Consumer Guides* and the *EdTech Locator*. These tools help school administrators make informed decisions relating to educational and assistive technology. The *Guides* suggest questions to ask technology vendors and issues to consider in the following five areas:

- Alignment of standards and curriculum goals;
- Implementation of technologies;
- Scientifically-based research;
- Funding for purchasing educational technology; and
- Federal legislative mandates such as Individuals with Disabilities Education Act (IDEA) and the Elementary and Secondary Education Act (ESEA).

The *EdTech Locator* focuses on the work of a technology implementation team in a district or school, outlining the responsibilities for administrators, technology coordinators, professional development coordinators, and teachers. The action principles below are drawn from both resources.

### Action Principles

#### For District

1. Develop guidance for schools on aligning technology products and classroom curriculum.
2. Create a school or district-wide technology implementation team made up of administrators, technology coordinators, teachers, and professional development coordinators to identify key areas of focus for implementation efforts.
3. Work with district or regional educational technology resource centers to establish a list of technology products that address state standards and meet the needs of all students, both with and without disabilities.

4. Collaborate with educational technology resource centers to develop training programs to help district teachers use AT and integrate them into existing curriculum.
5. Consider participating in technology studies conducted by research organizations and local academic institutions.
6. Collaborate with other districts to reduce unnecessary spending and to identify effective technology interventions.
7. Identify grants from state agencies and foundations to purchase needed technologies.
8. Establish public-private partnerships in communities with businesses to build a sustainable technology infrastructure.

### **For School**

1. Ensure that teachers are comfortable using technology for their own productivity and professional learning.
2. Work with professional development and instructional media leaders to integrate technology into instructional initiatives.
3. Create opportunities for teachers to work together to practice with new technologies before using them instructionally.
4. Consider low- or mid-tech devices that can meet the needs of students with lower purchase and maintenance costs.
5. Take advantage of trial periods or demonstration copies of software to ensure that technologies meet the needs of students.
6. Apply for grants from the local school district, state, business partners, and foundations to purchase technologies.

### **References and Resources**

Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). *How people learn: Brain, mind, experience, and school*. Expanded edition. Washington, DC: National Research Council.

Center for Implementing Technology in Education, [www.CITEd.org](http://www.CITEd.org)

*A one-stop Web site for vetted resources on implementing technology into teaching and learning, categorized into custom searches and role-based responsibilities.*

Center for Implementing Technology in Education. (n.d.). *Technology Works! Information Briefs*. CITED Learn Center.

Retrieved from [http://www.cited.org/index.aspx?page\\_id=2](http://www.cited.org/index.aspx?page_id=2)

*Articles written for practitioners on focused topics around the use of emerging technologies for learning.*

Center for Implementing Technology in Education. (n.d.). *EdTechLocator*. Retrieved from <http://www.edtechlocator.org>

*A role-based map and self-assessment for implementation teams to use for technology planning and implementation.*

Center for Implementing Technology in Education. (n.d.). *Implementing and Scaling Up Technology*. Retrieved from [http://www.cited.org/index.aspx?page\\_id=190](http://www.cited.org/index.aspx?page_id=190)

*Based on the science of implementation, these research briefs identify the key issues in implementing, scaling up, and sustaining a technology initiative.*

Center for Implementing Technology in Education. (n.d.). *Multimedia Technologies*. Retrieved from [http://www.cited.org/index.aspx?page\\_id=141](http://www.cited.org/index.aspx?page_id=141)

*12 articles to help integrate multimedia technologies into classroom teaching.*

National Center for Technology Innovation, [www.NationalTechCenter.org](http://www.NationalTechCenter.org)

*Project that connects implementation leaders, technology developers, policymakers, and consumer technology trends and research.*

National Center for Technology Innovation. (n.d.). *Consumer Guides*. Retrieved from <http://www.techmatrix.org/consumer-Guides.aspx>

*Decision-support tools for school administrators as they consider purchasing and implementing technology.*

National Center for Technology Innovation. (2008, January). *The Power of Social Media to Promote Assistive and Learning Technology*. Retrieved from <http://www.nationaltechcenter.org/index.php/2008/01/29/rpt-power-of-social-media-final/>  
*An Issue Paper by the National Center for Technology Innovation that provides guidance and rationale for using social media tools to communicate and educate.*

National Center for Technology Innovation. (2009). *The TechMatrix*. Retrieved from <http://www.techmatrix.org>  
*A free, searchable online database of products reviewed for their accessibility and universal design features along with a database of research on the use of technology for students with disabilities.*

National Center for Technology Innovation. (2009). *Unleashing the Power of Innovation for Assistive Technology*. Retrieved from <http://www.nationaltechcenter.org/index.php/2009/11/16/rpt-innovation-for-assistive-technology/>  
*An Issue Paper by the National Center for Technology Innovation that outlines five key themes in technology development that define “state-of-the-art” educational and assistive technologies.*



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## Accelerating Instruction in Reading: Grades 9-12

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*National High School Center*

Many high school students are below grade level in reading. While the extent of the problem depends on the standard that is used, there is agreement that a substantial segment of high school students are behind (Balfanz, McPartland, & Shaw, 2002). Students needing reading remediation are not evenly dispersed among schools and population subgroups. High poverty schools have a higher rate of students who cannot read at the high school level. In addition, specific groups of students have a higher occurrence of reading deficiencies. For example, students with learning disabilities may enter high school reading on an elementary level (Bremer, Clapper, & Deshler, 2002). The increased enrollment of English language learners has also contributed to a wider gap in reading achievement (Comprehensive School Reform Quality Center, 2005).

All students can benefit from comprehensive interventions embedding literacy strategies into content area classes. High school students struggling with reading need targeted supplemental interventions in order to help accelerate their basic reading levels (for examples, see What Works Clearinghouse, n.d.). Often, students who have difficulty reading in high school face struggles in content-area courses that assume grade-level reading (Bremer, Clapper, & Deshler, 2002). The texts with which students interact in high school become longer and more complex, and the specific disciplinary skills required to interact with those texts become more demanding in high school. At the same time, students' reading challenges also can accumulate as they progress, making the task of identifying the specific nature of students' difficulties and appropriate interventions more challenging.

A number of recent reports point to the challenges of advancing adolescent literacy (Biancarosa & Snow, 2004; Carnegie Corporation, 2010; Graham & Perin, 2007). The following section highlights specific action principles at the state, district, and school levels and provides selected resources that include strategies which might be useful for supporting literacy instruction in high schools.

### **Action Principles**

#### **For State**

1. Create a task force or statewide initiative focused on adolescent literacy that would include representatives from various divisions of the state education agency (curriculum, teacher certification, assessment, high school office staff, etc.), institutes of higher education that have teacher pre-service training programs, district staff, and teachers (including high school content area teachers).
2. Design policy structures and supports to drive local implementation of district- and school-wide literacy plans.
3. Consider embedding content area literacy strategies into the certification and recertification process for high school teachers.
4. Create a certification process for high school literacy coaches.

#### **For District and School**

1. Develop and support expertise in content area literacy strategies.
2. Screen all high school students for reading achievement levels and provide appropriate interventions to help those several grade levels behind.
3. Provide ongoing, job-embedded professional development on content area literacy strategies for all content area staff.
4. Make instructional and structural changes in the high school that support interventions for struggling readers and literacy strategies (e.g. tiered interventions, extended learning time).
5. Implement, with fidelity, reading intervention programs for students who need additional support with reading.

### **Annotated State High School Reading Resources**

- Bacevich, A. & Salinger, T. (2006): This report provides five recommendations for states and districts based on a study of the Alabama Reading Initiative: begin with a flexible model that reflects a broad research base that can be responsive to the needs of students, content areas, and local conditions; use explicit strategies to increase comprehension across content areas; identify and intervene as early as possible with students who are most at risk; ensure leadership development; and be creative and vigilant with local and external funding.
- Carnegie Council on Advancing Adolescent Literacy. (2010): The Carnegie Council on Advancing Adolescent Literacy has recently released a series of reports that provide research and specific recommendations designed to tackle adolescent literacy. The first of those, *A Time to Act: An Agenda for Advancing Adolescent Literacy for College and Career Success*, contains a chapter with priority action steps for school leaders, district leaders, state leaders, and federal policymakers.
- Haynes, M., & Levin, J. (2009): This report outlines the actions in five states where leaders have made significant gains in adolescent literacy. Those actions include: adopting comprehensive literacy plans that connect reading, writing, speaking, listening, and thinking and integrate literacy instruction within subject areas; strengthening teacher licensure and preparation of teachers to provide research-based reading and writing throughout the curriculum; developing a continuum of supports and interventions for struggling readers and designing policy structures and supports to drive local implementation of district- and school-wide literacy plans.
- National Association of State Boards of Education. (2006): This report recommends that every state “develop and vigorously implement a statewide literacy plan to ensure that all students can read proficiently.” It provides a checklist for states that includes laying the ground work for a focus on adolescent literacy, establishing a state framework, and ensuring that teachers have the knowledge and support to provide literacy instruction.
- Southern Regional Education Board. (2009): Leaders from the Southern Regional Education Board states consulted with experts and examined state practices to generate a list of recommended state actions: define specific reading skills students need to master key subjects; identify the best teaching strategies to help students develop comprehension skills in each subject; ensure these strategies are applied statewide by including them in professional development for current teachers and in preparation programs for new teachers; and provide support that struggling readers need.

### **Annotated District and School High School Reading Resources**

- Torgesen, J. K., Houston, D. D., Rissman, L. M., Decker, S. M., et al. (2007): This piece provides research-based evidence and endorses specific interventions for students who are reading below grade level and those who are English language learners (ELLs). The publication describes six areas that are essential for reading and thinking skills in grades 4-12: reading fluency, vocabulary knowledge, content knowledge, higher-level reasoning and thinking skills, cognitive strategies specific to reading comprehension, and motivation and engagement.
- Scammacca, N., et al. (2007): This report, commissioned by the Center on Instruction, offers decision-makers research-based information about interventions that can help older students who continue to struggle with reading. This report provides research-based implications for practice.
- Biancarosa, G. & Snow, C. (2004): This document, which was supported by Carnegie Corporation of New York, outlines 15 key components of comprehensive literacy programs, essentially providing a checklist for schools and districts that wanted to improve their services for adolescent struggling readers. The fifteen components are: direct, explicit instruction; effective instructional principles embedded in the content; motivation and self-directed learning; text-based collaborative learning; strategic tutoring; diverse texts; intensive writing; technology components; ongoing formative assessments; extended time for literacy; professional development; ongoing summative assessments of students and programs; teacher teams; leadership; and comprehensive and coordinated literacy program.

- Kamil, M., et al. (2008): The Institute of Education Sciences (IES) commissioned a practice guide designed to bring the best possible evidence to the challenge of improving adolescent literacy. This report describes five recommendations for instruction as well as the strength of evidence to support each: provide explicit vocabulary instruction; provide direct and explicit comprehension strategy instruction; provide opportunities for extended discussion of text meaning and interpretation; increase student motivation and engagement in literacy learning; and make available intensive and individualized interventions for struggling readers that can be provided by trained specialists.

## References and Resources

- Bacevich, A., & Salinger, T. (2006). *Sustaining focus on secondary school reading: Lessons and recommendations from the Alabama Reading Initiative*. Washington, DC: National High School Center at the American Institutes for Research. Retrieved from [http://www.betterhighschools.org/docs/NHSC\\_ARI\\_ResearchBrief\\_010907.pdf](http://www.betterhighschools.org/docs/NHSC_ARI_ResearchBrief_010907.pdf)
- Balfanz, R., McPartland, J., & Shaw, A. (2002). *Re-conceptualizing extra help for high school students in a high standards era*. Baltimore, MD: Center for Social Organization of Schools, Johns Hopkins University.
- Biancarosa, G., & Snow, C. (2004). *Reading next: A vision for action and research in middle and high school literacy*. A report to Carnegie Corporation of New York. Washington, DC: Alliance for Excellent Education. Retrieved from <http://www.all4ed.org/publications/ReadingNext?ReadingNext.pdf>
- Boardman, A. G., Roberts, G., Vaughn, S., Wexler, J., Murray, C. S., & Kosanovich, M. (2008). *Effective instruction for adolescent struggling readers: A practice brief*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from <http://www.centeroninstruction.org/files/Practice%20Brief-Struggling%20Readers.pdf>
- Bremer, C. D., Clapper, A. T., & Deshler, D. D. (2002). Improving word identification skills using Strategic Instruction Model (SIM) Strategies. *Research to Practice Brief*, 1(4). Minneapolis, MN: University of Minnesota, National Center on Secondary Education and Transition.
- Carnegie Council on Advancing Adolescent Literacy. (2010). *Time to act: An agenda for advancing adolescent literacy for college and career success*. New York, NY: Carnegie Corporation of New York. Retrieved from <http://www.carnegie.org/literacy/tta/index.html>
- Center on Instruction. (2007). *A synopsis of "Writing next: Effective strategies to improve writing of adolescents in middle & high schools."* Portsmouth, NH: RMC Research Corporation: Author. Retrieved from <http://www.centeroninstruction.org/files/COI%20SPED%20Writing%20Next%20synopsis.pdf>
- Center on Instruction. (2009). *Adolescent literacy resources: An annotated bibliography—Second edition 2009*. RMC Research Corporation, Portsmouth, NH: Author. Retrieved from <http://www.centeroninstruction.org/files/Annotated%20Biblio%20Second%20Edition%202009.pdf>
- Comprehensive School Reform Quality Center. (2005). *Works in progress: A report on middle and high school improvement programs*. Washington, DC: American Institutes for Research.
- Gajria, M., Jitendra, A., Sood, S., & Sacks, G. (2007). Improving comprehension of expository text in students with LD: A research synthesis. *Journal of Learning Disabilities*, 40, 210-225. Retrieved from <http://www.centeroninstruction.org/files/Synopsis%20Improving%20Comprehension.pdf>
- Graham, S., & Perin, D. (2007). *Writing next: Effective strategies to improve writing of adolescents in middle and high schools*. A report to Carnegie Corporation of New York. Washington, DC: Alliance for Excellent Education. Retrieved from <http://www.all4ed.org/files/WritingNext.pdf>
- Haynes, M., & Levin J. (2009). *State actions to improve adolescent literacy: Results from NASBE's State Adolescent Literacy Network*. Arlington, VA: National Association of State Boards of Education.
- Kamil, M. L., Borman, G. D., Dole, J., Kral, C. C., Salinger, T., & Torgesen, J. (2008). *Improving adolescent literacy: Effective classroom and intervention practices: A practice guide* (NCEE #2008-4027). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from [http://ies.ed.gov/ncee/wwc/pdf/practiceguides/adlit\\_pg\\_082608.pdf](http://ies.ed.gov/ncee/wwc/pdf/practiceguides/adlit_pg_082608.pdf)
- Koelsch, N. (2006). *Improving literacy outcomes for English language learners in high school: Considerations for states and districts in developing a coherent policy framework*. Washington, DC: National High School Center at the American Institutes for Research. Retrieved from [http://www.betterhighschools.org/docs/NHSC\\_ImprovingLiteracy\\_010907.pdf](http://www.betterhighschools.org/docs/NHSC_ImprovingLiteracy_010907.pdf)

- Miller, M. (2009). *Seize the moment: The need for a comprehensive federal investment in adolescent literacy*. Washington, DC: Alliance for Excellent Education.
- National Association of State Boards of Education. (2006). *Reading at Risk: The state response to the crisis in adolescent literacy*. Arlington, VA: Author.
- Rivera, M. O., Moughamian, A. C., Lesaux, N. K., & Francis, D. J. (2008). *Language and reading interventions for English language learners and English language learners with disabilities*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from <http://www.centeroninstruction.org/files/Lang%20and%20Rdng%20Interventions%20for%20ELLs%20and%20ELLs%20with%20Disabilities.pdf>
- Rissman, L. M., Miller, D. H., & Torgesen, J. K. (2009). *Adolescent literacy walk-through for principals: A guide for instructional leaders*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from <http://www.centeroninstruction.org/files/Adol%20Lit%20Walk%20Through.pdf>
- Rutenberg, D. (2009). *High school literacy: A quick stats fact sheet*. Washington, DC: National High School Center at the American Institutes for Research. Retrieved from [http://www.betterhighschools.org/pubs/documents/NHSC\\_HighSchoolLiteracy.pdf](http://www.betterhighschools.org/pubs/documents/NHSC_HighSchoolLiteracy.pdf)
- Scammacca, N., Roberts, G., Vaughn, S., Edmonds, M., Wexler, J., Reutebuch, C. K., & Torgesen, J. K. (2007). *Interventions for adolescent struggling readers: A meta-analysis with implications for practice*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from <http://www.centeroninstruction.org/files/COI%20Struggling%20Readers.pdf>
- Short, D. J., & Fitzsimmons, S. (2007). *Double the work: Challenges and solutions to acquiring language and academic literacy for adolescent English language learners. A report to the Carnegie Corporation of New York*. Washington, DC: Alliance for Excellent Education.
- Southern Regional Education Board. (2009). *A critical mission: Making adolescent reading an immediate state priority in SREB states, the report of the Committee to Improve Reading and Writing in Middle and High Schools*. Atlanta, GA: SREB Committee to Improve Reading and Writing in Middle and High School. Retrieved from [http://www.sreb.org/cgi-bin/MySQLdb?VIEW=/public/docs/view\\_one.txt&docid=671](http://www.sreb.org/cgi-bin/MySQLdb?VIEW=/public/docs/view_one.txt&docid=671)
- Torgesen, J., Houston, D., & Rissman, L. (2007). *Improving literacy instruction in middle and high schools: A guide for principals*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from <http://www.centeroninstruction.org/files/Principal%20s%20Guide%20Secondary.pdf>
- Torgesen, J. K., Houston, D. D., Rissman, L. M., Decker, S. M., Roberts, G., Vaughn, S., . . . Lesaux, N. (2007). *Academic literacy instruction for adolescents: A guidance document from the Center on Instruction*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from <http://www.centeroninstruction.org/files/Academic%20Literacy.pdf>
- Torgesen, J. K., & Miller, D. H. (2009). *Assessments to guide adolescent literacy instruction*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from <http://www.centeroninstruction.org/files/Assessment%20Guide.pdf>
- What Works Clearinghouse. (n.d.). *Adolescent literacy*. Washington, DC: U.S. Department of Education, What Works Clearinghouse. Retrieved from <http://ies.ed.gov/ncee/wwc/reports/topic.aspx?tid=15#>

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## Accelerating Instruction in Mathematics: Grades 9-12

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National High School Center

Taking advanced mathematics in high school has been found to be strongly associated with postsecondary success (Adelman, 1999). Algebra I is viewed as the “gatekeeper course,” and successful completion paves the way for students to advance to higher level mathematics coursework that will help to prepare them for post-secondary career and college opportunities (Bangser, 2008). Unfortunately, a large number of students enter high school with poor math skills (Strickland & Walters, 2009) and are not prepared to successfully complete an algebra course. Without the proper assistance, the likelihood of these students participating in a rigorous math course sequence is greatly reduced.

Accelerating instruction in math helps to address the issue by moving away from the more traditional model of remediation that, in most cases, keeps students on low academic tracks that some believe contribute to their persistent low achievement. The underlying premise of accelerated instruction is that all students should have the opportunity to enroll in rigorous mathematics coursework. Therefore, instead of slowing down the instructional pace for low-achieving students, instruction is accelerated to help these students overcome prior poor educational preparation and “catch up.” With accelerated instruction, students learn foundational math skills as well as higher level mathematics content. As a result, they remain on-track to take more advanced mathematics courses.

Accelerating mathematics instruction is especially important to provide foundational skills necessary for mastery of other content areas. Within the context of accelerating instruction, educators must consider the quality and nature of instruction provided. Accelerated instruction must be based on a well-designed curriculum taught by qualified instructors. Implementing this strategy also calls for smaller classes, differentiation of instruction, and the use of multiple instructional modalities such as computer-based programs, hands-on activities, group and independent activities to better address diverse student needs (Portz & Gaudet, 2001).

Although the research evidence on the needs of students who enter high school with inadequate mathematics skills is minimal, schools can employ several promising strategies to accelerate instruction. These include the following:

*Double-blocked class schedules:* With a double-blocked class schedule, classes meet daily for extended periods and can cover a year’s worth of material in one semester. This gives students the opportunity to attempt and earn more credits per year than more traditional schedules such as daily 50-minute classes or a single-blocked schedule with 80- or 90-minute classes meeting every other day (Herlihy & Quint, 2006).

*Catch-up courses:* Semester-long intensive “catch-up” courses that strengthen ninth-grade students’ skills in reading and mathematics appear to help students succeed in the regular curriculum, with gains in credits earned being sustained over time. These courses are designed to prepare students for more rigorous college preparatory classes such as English I and Algebra I (Herlihy & Quint, 2006).

*Mathematics support pull-out programs:* This involves pulling students out of their regular classes for participation in more specialized instruction tailored to their academic needs (Portz & Gaudet, 2001).

For more information on these strategies, please reference the section on “Credit Recovery Programs” in Chapter 5 of this *Handbook*.

### Action Principles

#### For District

1. Provide guidelines on how to offer accelerated mathematics programs.
2. Provide oversight and support for instructional initiatives aimed at accelerating instruction to help ensure adherence to guidelines and effective implementation.

3. Provide criteria for assessing student skill deficits and identifying which students need accelerated instruction.
4. Provide standards and assessments for monitoring instruction and student learning.
5. Provide teachers with ongoing support for and professional development on implementing accelerated instruction.
6. Track the progress of school efforts and student achievement to help identify effective practices and establish a system of accountability.

#### **For School**

1. Use standards and assessment data to help plan and/or improve the math curriculum and ensure that it is tailored to students' needs.
2. Develop early warning systems to identify students in need of extra math instruction when they enter high school.
3. Administer a diagnostic assessment at the beginning of the school year to identify specific math skill and content weaknesses and use this information as the foundation for students' curricular and instructional planning.
4. Make teacher assignments based on the needs of students; an assessment of teacher strengths and weaknesses should guide these decisions. Teachers should have adequate mathematics content knowledge as well as the skills to work with struggling students. Provide teachers with professional development and support in issues related to curriculum and instruction (including model lesson plans and opportunities to engage with master teachers).
5. Develop guidelines to monitor and ensure the efficient use of class time, student engagement, and the use of a range of instructional strategies.

#### **References and Resources**

- Adelman, C. (1999). *Answers in the tool box: Academic intensity, attendance patterns, and bachelor's degree attainment*. Washington, DC: U.S. Department of Education.
- Bangser, M. (2008). *Preparing high school students for successful transitions to postsecondary education and employment*. Washington, DC: National High School Center at the American Institutes for Research. Retrieved from [http://www.betterhighschools.org/pubs/documents/PreparingHSSStudentsforTransition\\_073108.pdf](http://www.betterhighschools.org/pubs/documents/PreparingHSSStudentsforTransition_073108.pdf)
- Herlihy, C. M., & Quint, J. (2006). *Emerging evidence on improving high school student achievement and graduation rates: The effects of four popular improvement programs*. Washington, DC: National High School Center at the American Institutes for Research. Retrieved from [http://www.betterhighschools.org/pubs/documents/NHSC\\_EmergingEvidence\\_010907\\_000.pdf](http://www.betterhighschools.org/pubs/documents/NHSC_EmergingEvidence_010907_000.pdf)
- Herlihy, C. (2007). *State and district-level supports for successful transition into high school*. Washington, DC: National High School Center at the American Institutes for Research. Retrieved from [http://www.betterhighschools.org/docs/NHSC\\_PolicyBrief\\_TransitionsIntoHighSchool.pdf](http://www.betterhighschools.org/docs/NHSC_PolicyBrief_TransitionsIntoHighSchool.pdf)
- Portz, J., & Gaudet, R. (2001). *A new commitment, effective remediation strategies for high school students*. Boston, Massachusetts: Mass Insight Education and Research Institute, Inc.
- Strickland, T., & Walters, K. (2009). *Quick stats fact sheet: High school mathematics performance*. Washington, DC: National High School Center at the American Institutes for Research.
- The Education Trust. (2005). *Gaining traction, gaining ground: How some high schools accelerate learning for struggling students*. Washington, DC: Author.

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## Providing Advanced Coursework in High Schools

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*National High School Center*

The availability of and participation in Advanced Placement and International Baccalaureate programs and advanced courses in science, technology, engineering, and mathematics (STEM) disciplines are integral to preparing high school students for college and the workforce. Students are more likely to stay in school (Archambault, Janosz, Morizot, & Pagani, 2009) and perform at high levels (Cole, Kennedy, & Ben-Avie, 2009) if they are engaged with a challenging curriculum that helps them develop the college- and career-ready skills they need to succeed after high school.

*Advanced Placement (AP)* programs are designed to provide students with college-level courses and exams. Many colleges throughout the nation reward students who score a 3 or higher on Advanced Placement tests with college credit or access to higher level college courses. Research shows that students who take the AP course and the AP exam earn higher GPAs and more credits in college and are more likely to graduate from college than students who took only the AP course or a non-AP course in the same subject (e.g., Hargrove, Godin, & Dodd, 2008; Dougherty, Mellor, & Jian, 2006).

In recent years the number of students taking Advanced Placement courses has increased (College Board, 2009). The largest gains in Advanced Placement course taking are among groups of students previously underrepresented in these courses, with minority participation having increased by 106% between 2007 and 2008 (Wakelyn, 2009). However, despite these gains, African American, Hispanic, and American Indian students are still underrepresented in Advanced Placement courses.

The *International Baccalaureate (IB)* program is designed as an academically challenging two-year program for highly motivated juniors and seniors that prepares them for success in college and beyond. Recognized across the world as a demanding high school curriculum, the IB program includes a set of rigorous written and oral examinations that culminates in an IB diploma. Over the past decade, the number of IB programs in North America grew from 227 to 624, increasing by about 10% annually, and the program continues to expand into urban high schools throughout the nation (Byrd et. al., 2007).

Like AP students, those who participate in an IB program enjoy significant advantages for college admittance and have greater success in postsecondary settings than their non-IB peers (International Baccalaureate Organization, 2007). Furthermore, research suggests that an IB program can help urban schools attract and retain African American, Hispanic, and American Indian students, as well as students from disadvantaged backgrounds (Mayer, 2008).

*Science, Technology, Engineering, and Mathematics (STEM)*. Both AP and IB, along with other programs, provide students with rigorous, challenging courses in core subjects, including advanced science and mathematics. As changes in the global economy call for a diverse cadre of innovators in STEM fields, a dwindling number of students in the United States are entering these fields. Moreover, American high schools are failing to equip their graduates with the knowledge and skills they need to excel in STEM fields in college and in the workforce (Seymour & Hewitt 1997; Taningco, Mathew, & Pachon, 2008).

Many states, districts, and schools are implementing programs designed to expose all students to a rigorous STEM curriculum and keep students—particularly underrepresented minority and female students—in the STEM “pipeline” through and beyond college. High quality curriculum and instruction, supported with ongoing professional development for STEM teachers, are keys to ensuring that students graduate with the skills they need to excel in the high-demand STEM fields (Leinwand, 2008). Furthermore, schools and districts that partner with the local scientific and business communities, as well as with institutions of higher education, can focus their resources to enhance STEM learning opportunities (Coppola & Malyn-Smith, 2006) and provide hands-on work-based opportunities for students to explore STEM in the real world.

## Action Principles

### For State

1. Develop a STEM task force and a statewide strategic action plan for accelerating education in STEM disciplines.
2. Seek federal and private grant funding to enhance STEM education.
3. Provide incentives for districts to partner with local institutions of higher education and the business and scientific communities to enhance STEM education.
4. Dounay (2006) offers additional action principles for states.

### For District

1. Ensure that all students have access to advanced coursework. For example, provide online programs for students who attend rural schools that have limited ability to offer advanced courses.
2. Develop strategies to increase enrollment of students who are underrepresented in advanced courses. Maintain records on enrollment in advanced coursework, disaggregated by school and subgroup. Use these data to track underrepresented students' enrollment patterns in advanced courses.
3. Provide teachers with the appropriate training and professional development to deliver advanced instruction.
4. Engage local institutions of higher education, STEM industry members, and other agencies in enhancing STEM education programs.
5. Apply for a grant from the National Science Foundation (NSF) to enhance STEM education. Partner with local institutions of higher education to develop and implement comprehensive K-20 STEM programs that specifically target minority and female students.

### For School

1. Develop strategies and provide appropriate supports to increase access to, enrollment in, and completion of advanced courses for groups of students who historically have not been given the opportunity to participate.
2. Design needed support systems.
3. Support teachers of AP, IB, and other advanced courses who pursue professional development.
4. Foster student engagement in STEM learning through hands-on and inquiry-based opportunities.
5. Provide financial assistance for test fees to low-income students.
6. Provide opportunities for interdisciplinary teaming among teachers, so that, for example, science and reading teachers can collaborate to design course modules for students.
7. Implement innovative school structures to encourage STEM enrollment, including ninth grade academies, catch-up courses, and extended learning time.

## References and Resources

- Archambault, I., Janosz, M., Morizot, J., & Pagani, L. (2009, September). Adolescent behavioral, affective, and cognitive engagement in school: Relationship to dropout. *Journal of School Health, 79*(9), 408-415.
- Atkinson, R. D., Hugo, J., Lundgren, D., Shapiro, M. J., & Thomas, J. (2007, March). *Addressing the STEM challenge by expanding specialty math and science high schools*. Washington, DC: The Information Technology and Innovation Foundation.
- Byrd, S., Ellington, L., Gross, P., Jago, C., & Stern, S. (2007, November). *Advanced Placement and International Baccalaureate: Do they deserve gold star status?* New York: Thomas B. Fordham Institute. Retrieved from [http://www.edexcellence.net/detail/news.cfm?news\\_id=378](http://www.edexcellence.net/detail/news.cfm?news_id=378)
- Cole, J. S., Kennedy, M., & Ben-Avie, M. (2009). The role of precollege data in assessing and understanding student engagement in college. *New Directions for Institutional Research, 141*, 55-69.

- Coppola, R. K., & Malyn-Smith, J. (Eds.). (2006). *Preparing for the perfect storm*. A report on the forum Taking Action Together: Developing a National Action Plan to Address the "T&E" of STEM. Retrieved from <http://www.iteaconnect.org/Publications/Promos/NAE.pdf>
- Daugherty, C., Mellor, L., & Jian, S. (2006). *The relationship between Advanced Placement and college graduation*. Washington, DC: National Center for Educational Achievement.
- Dounay, J. (2006, February). *Advanced placement*. Denver, CO: Education Commission of the States. Retrieved from <http://www.ecs.org/clearinghouse/67/44/6744.htm>
- Finkelstein, N., Huang, M., & Fong, A. (2009, April). *High school course-taking patterns for English language learners: A case study from California*. Washington, DC: National High School Center at the American Institutes for Research. Retrieved from [http://www.betterhighschools.org/docs/HSCourse-takingPatternsforELLs\\_042309.pdf](http://www.betterhighschools.org/docs/HSCourse-takingPatternsforELLs_042309.pdf)
- Hargrove, L., Godin, D., & Dodd, B. (2008). *College outcomes comparisons by AP and non-AP high school experiences*. College Board Research Report No. 2008-3. New York: The College Board.
- Herlihy, C. M., & Quint, J. (2006). *Emerging evidence on improving high school student achievement and graduation rates: The effects of four popular improvement programs*. Washington, DC: National High School Center at the American Institutes for Research. Retrieved from [http://betterhighschools.org/pubs/documents/NHSC\\_EmergingEvidence\\_010907\\_000.pdf](http://betterhighschools.org/pubs/documents/NHSC_EmergingEvidence_010907_000.pdf)
- International Baccalaureate Organization. (2007). *Overview of research*. Retrieved from [http://www.ibo.org/ibna/research/documents/IBResearch-Sep05-1\\_000.ppt](http://www.ibo.org/ibna/research/documents/IBResearch-Sep05-1_000.ppt)
- Kentucky Council on Postsecondary Education. (2007). *Kentucky's science, technology, engineering, mathematics imperative: Competing in the global economy*. Retrieved from <http://cpe.ky.gov/NR/rdonlyres/F42E412A-8508-4269-A50B-1E5F896CD42F/0/STEMreportFINALDRAFTwCovers.pdf>
- Leinwand, S. (2008, June). *Stimulating discussion around "what we know" about strengthening high school mathematics programs and outcomes*. Presented at the National High School Center Summer Institute on Thursday, June 19, 2008. Retrieved from <http://www.betterhighschools.org/SI08/STEM.asp>
- Mayer, A. P. (2008). Expanding opportunities for high academic achievement: An International Baccalaureate diploma program in an urban high school. *Journal of Advanced Academics*, 19(2), 202-235.
- McGranner, K. L. (2009, June). *Key issue: Recruiting science, technology, engineering, and mathematics (STEM) teachers*. Washington, DC: National Comprehensive Center for Teacher Quality. Retrieved from [http://www.tqsource.org/publications/KeyIssue\\_RecruitingSTEM.pdf](http://www.tqsource.org/publications/KeyIssue_RecruitingSTEM.pdf)
- National High School Center. (2009, April). *Report on key practices and policies of consistently higher performing high schools*. Washington, DC: National High School Center at the American Institutes for Research. Retrieved from [http://betterhighschools.org/pubs/documents/ReportOfKeyPracticesandPolicies\\_10-31-06.pdf](http://betterhighschools.org/pubs/documents/ReportOfKeyPracticesandPolicies_10-31-06.pdf)
- Seymour, E., & Hewitt, N. M. (1997). *Talk about leaving: Why undergraduates leave the sciences*. Boulder, CO: Westview Press.
- Taningco, M. T. V., Mathew, A. B., & Pachon, H. P. (2008, April). *STEM professions: Opportunities and challenges for Latinos in science, technology, engineering, and mathematics: A review of the literature*. California: The Tomás Rivera Policy Institute.
- The College Board. (2009, February). *The 5th annual AP report to the nation*. Author.
- Wakelyn, D. (2009). *Raising rigor, getting results: Lessons learned from AP expansion*. Washington, DC: National Governors Association.



# Implementing Competency-Based Instruction in High Schools

*National High School Center*

Since 1908, Carnegie Units have been the primary means of determining course completion credit and graduation eligibility in the nation's high schools. In brief, a Carnegie Unit represents how many "contact hours" or how much "seat time" a student has devoted to the study of a particular school subject (usually 120 hours per credit). Competency-based instruction provides an alternative to the Carnegie Unit system by focusing on the mastery of a set of specific competencies or skills that encompass the course content. Students in competency-based courses must demonstrate and apply what they have learned by performing real-world tasks (Wiggins, 1990). Through an outcome-focused approach, competency-based instruction in high school enables and supports the following:

- *Flexibility*: Students can shorten the time needed to meet graduation requirements (e.g., by placing out of a course or mastering the required skills in a reduced timeframe) and take advantage of extra-curricular learning opportunities such as interdisciplinary and independent studies, dual enrollment programs, and internships;
- *Multiple assessments*: Educators can look to multiple measures of what students actually know and can do rather than rely solely on large-scale, standardized, norm-referenced achievement tests that are predominantly multiple-choice (Schmoker, 2008; 2009); and
- *Responsiveness to individual student needs*: Competency-based instruction allows English language learners (Gomez, 1998) and special education students (Venn, 2000) alternative mechanisms to demonstrate their proficiency in a content area.

Most state policies permit students to earn proficiency or competency-based credit whether by completing an activity that demonstrates mastery of the required content from a list of approved activities or case-by-case upon approval by a local school board or superintendent. One of the more common mechanisms for demonstrating competency-based mastery is performance assessments (Marzano et al., 1993; Wiggins, 1998), which include projects and portfolios such as those used in Michigan, New York, and Maine. Project-based learning (PBL) is a type of competency based instruction that engages students in meaningful and relevant work and builds on student interests. PBL is characterized by extended student inquiry activities; deep study over a breadth of topics; some degree of self-directed learning; and a presentation of findings, results, or conclusions (Ravitz, 2008).

Portfolios are another strategy used in competency-based instruction to showcase and document student work as exemplars of achievement and/or progress towards achieving learning standards (Gomez, 1998). Additional competency-based instructional approaches currently in use by states include courses offered at occupational centers, postsecondary institutions, and technical training programs; community service, internship and externship activities that are monitored or structured by the school; foreign exchange programs or demonstrated fluency in a foreign language or American Sign Language; private instruction; distance learning opportunities; and artistic performances and visual art demonstrations and exhibitions (Education Commission of the States, 2006; Lloyd, 2007).

## Action Principles

### For State

1. Provide assessments for all core courses in line with state standards that students can take to earn credit. These exams should emphasize authentic and challenging content and skills, be validated as accurate predictors of postsecondary performance, and should be aligned with postsecondary school systems (e.g., California, Washington, New York), as well as 21st century knowledge and skills (Achieve, 2004a; 2004b).
2. Provide resources and expertise to districts to support professional development on effective performance assessment.

### For District

1. Develop resources (e.g., rubrics, content- and grade-specific models and exemplars) to support implementation of performance assessment at the school level.
2. Provide professional development in effective performance assessment in the subject areas.

### For School

1. Develop and implement mechanisms (e.g., policies, procedures, guidelines, checklists, portfolio rubrics, block scheduling, student advisories, career academies) for structuring, monitoring, documenting, and evaluating students' out-of-school and extra-curricular learning experiences.

### References and Resources

- Achieve. (2004a). *Ready or not: Creating a high school diploma that counts*. Washington, DC: Author.
- Achieve. (2004b). *Do graduation tests measure up? A closer look at state high school exit exams*. Washington, DC: Author.
- Education Commission of the States. (2006). *High school graduation requirements database*. Retrieved from <http://mb2.ecs.org/reports/Report.aspx?id=900>
- Gomez, E. L. (1998). *Portfolio assessment and English language learners: An annotated bibliography*. Providence, RI: The Education Alliance, LAB at Brown University.
- Lloyd, S. (2007). *What it takes to graduate for the class of 2007*. Bethesda, MD: Editorial Projects in Education Research Center.
- Marzano, R. J., Pickering, D., & McTighe, J. (1993). *Assessing student outcomes: Performance assessment using the dimensions of learning model*. Alexandria, VA: ASCD.
- National High School Center. (2009). *Navigating the national high school improvement landscape*. Washington, DC: National High School Center at the American Institutes for Research. Retrieved from <http://betterhighschools.org/map/default.asp>
- Ravitz, J. (2008). *Project based learning as a catalyst in reforming high schools*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.
- Schmoker, M. (2008/2009). Measuring what matters. *Educational Leadership*, 66(4), 70-74.
- Wiggins, G. (1998). *Educative assessment: Designing assessments to inform and improve student performance*. San Francisco, CA: Jossey-Bass.
- Wiggins, G. (1990). *The case for authentic assessment*. Washington, DC: ERIC Clearinghouse on Tests Measurement and Evaluation and American Institutes for Research. Retrieved from [http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content\\_storage\\_01/0000019b/80/22/c5/e7.pdf](http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/22/c5/e7.pdf)
- Venn, J. J. (2000). *Assessing students with special needs* (2nd ed.). Upper Saddle River, NJ: Merrill.