Differentiated Academic Rigor: An Opportunity for Increased Student Success

John Garber

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**Introduction and Rationale:**

The motivation for this project evolved from an October Social Studies department meeting at Twinsburg High School where I currently teach. My department chair reluctantly explained that only seventy percent of our graduating seniors attempt a post-secondary option, at either a two year or four year institution. Of the sixty-five percent of our seniors who enrolled in a traditional four year college or university in 2010, twenty-five percent of those students needed remedial coursework, specifically developing finite writing and mathematics skills. The theme of the meeting centered on one question, “what is college ready?” The dialogue eventually led to a demand for a more rigorous approach to instruction, which would ultimately better serve our post-secondary bound students. Now, as in October, I agree with my colleagues that a more rigorous curriculum is essential for our students. However, the focus must be on a implementing a differentiated rigorous approach to curriculum for the entire student body, not just our college bound or gifted students.

**Problem Statement:**

 Academic rigor is not a new concept and has long been advocated as an important component of educational programs for gifted learners. More than seventy years ago, John Dewey first called for education that included rigorous content, and the conversation about rigor continues to the present day. Traditionally though, the majority of the discussion has focused on the appropriate integration for gifted students, and to what extent could rigor further develop their higher level cognitive abilities (Matusevich, et al., *The Nonnegotiables of Academic Rigor,*  2009). Furthermore, Academic rigor has energetically reemerged as a potential solution for a demanding and increasingly dynamic problem: how to best prepare American students for a diverse, taxing and demanding twenty-first century society. Specifically, many major colleges and universities across the United States consistently declare that far too many first year students are not adequately prepared for post-secondary academia (National Center for Education Statistics, Remedial Coursetaking, 2004).

Many business leaders echo these concerns, suggesting too many graduating seniors do not possess the necessary skills to immediately compete and perform effectively in a post-industrial economy. Dr. Daniel Bell, former Professor of Sociology at Harvard University argues that a post-industrial society and economy can be characterized by a “focus on technical skill as the base of power, while education becomes the mode of access to power” (Bell, *A Venture in Social Forecasting*, 1974). Numerous academics, business professionals and government officials are increasingly aware of the demand for more technical knowledge and specialized expertise as the United States continues forward in a post-industrial era. The National Governors Association Center for Best Practices has indicated that “nearly two-thirds of jobs in 2014 will require at least some college, but only twenty-five percent of students currently earn a bachelor’s degree in six years” (NGA Center for Best Practices, August, 2009). Similarly, the Pathways to College Network, a non-profit organization focused on advancing college opportunity for underserved students, suggest that “eighty-percent of today’s fastest growing jobs require some post-secondary education. All students regardless of their race or ethnicity, gender, socioeconomic or disability status need to complete an academically rigorous high school curriculum to be well equipped for productive work and civil life” (The Education Resources Institute, 2007). As a result, many educators including myself recognize the long term benefits of integrating a more rigorous academic curriculum for all students beyond their high school experience.

**Identifying a Definition of Academic “Rigor”**

Clearly, the goal of this research is to illustrate the benefits of implementing rigorous academic curriculum to best promote student success beyond high school. More importantly, the research will attempt to argue the inherent advantages of integrating differentiated academic rigor to better serve the unique diversity of individual learners. However, before arguing the proposed goal, it is first necessary to attempt to gain an understanding of how academic rigor has been traditionally, and currently, defined in the United States. The following definitions have been provided by some of the leading experts in the field of education retrieved from an article entitled *Understanding and Reporting on Academic Rigor*, developed by The Hechinger Institute on Education and the Media, Teachers College, Columbia University:

“Since the 1980s, states have sought “academic rigor” by aligning textbook content, teacher knowledge and resource allocation with learning standards for students from prekindergarten to 12th grade. The learning standards are typically the weak link – laundry lists of information created without understanding of what kids are ready to learn at a given stage of development. Now, there is a strong argument for developing curricula aligned with standards, assessments and teacher development that specify sequences of learning and provide much more guidance than standards. “Learning progressions” – subject matter organized according to learning and developmental theory about how kids understand increasingly complex concepts – locate students on a spectrum of understanding and development; facilitate assessments that are diagnostic; and shape truly personalized teaching. We have a long way to go, and such progressions may not be specifiable in all domains, but I think this approach gets us to true academic rigor.” *Susan H. Fuhrman is president of Teachers College, Columbia University.*

“A curriculum that exemplifies academic rigor is focused, coherent, and appropriately challenging. In the case of mathematics, such a curriculum focuses on a small number of topics at each grade to promote in-depth/mastery learning and sequences topics across grades in a coherent manner, reflecting the logic and structure of the academic discipline. Finally, such a curriculum is appropriately challenging from a cognitive or intellectual perspective in that topics are not excessively repeated but move students into an ever deeper and broader exposure to the discipline moving from basic concepts (e.g., meaning and operation of whole numbers) to more developed ones (e.g., the rational number system and its properties).”

*William Schmidt is University Distinguished Professor in the College of Education at Michigan State University.*

“At Atlanta Public Schools, we define academic rigor in a number of different ways. For teachers, academic rigor is delivering demanding coursework that forces students to stretch their minds. For students, academic rigor means that they will perform at high academic levels; demonstrate in-depth mastery of challenging and complex concepts; engage in their own learning process; and raise questions, think, reason, solve problems and reflect. Our goal is to teach our students to solve complex real-world programs so they can be competitive in our global economy. Our teachers engage all students in learning experiences where students are able to connect what they learn today to what they learned in the past and to what they need in the future.”

*Beverly L. Hall, Ed.D., has been superintendent of Atlanta Public Schools since 1999. In 2009 Hall was named National Superintendent of the Year.*

 Academic rigor is certainly a catchphrase within contemporary education. Consider President Obama’s remarks in March of 2009: “It is time to expect more from our students…It is time to prepare every child, everywhere in America, to out-compete any worker, anywhere in the world. It is time to give all Americans a complete and competitive education from the cradle up through a career” (Jacobs & Colvin, 2010). Considering that the United States has a decentralized system of public education, it is difficult to obtain a universal definition of a rigorous academic curriculum. According to the Pathways to College Network, several notable institutions including the State Scholars Initiative, High Schools That Work, The College Board, and ACT, Inc., have maintained that a rigorous academic high school curriculum would include the following: Four years of English, four years of Mathematics (including Algebra, Geometry and at least one other advanced mathematics course, i.e. Calculus or Statistics), three years of Laboratory Science – Biology, Chemistry and Physics, three years of Social Studies and two years of a world language. Furthermore, other organizations such The National Governors Association for Best Practices and Achieve’s American Diplomacy Project have advocated end-of-high-school standards that integrate the knowledge and skill students need for college and workplace readiness. Lastly, the Pathways to College Network maintains that an academically rigorous curriculum should in all cases be coherent across grade levels and teach analytical thinking, learning, comprehension, and writing skills.

 Matusevich’s findings in *The Nonnegotiables of Academic Rigor*, suggest that despite the fact that rigor is generally advocated for gifted learners, how it should be measured is not always well defined. This lack of specificity in defining academic rigor often makes it difficult to determine if curriculum actually meets the learning objectives. Consequently, individuals like Valorie Hargett who serves as the North Carolina State Consultant for the Academically or Intellectually Gifted (AIG), worked to develop and create a definition of academic rigor for the North Carolina State Board of Education as result of the passing of the High Student Performance Bill F16 in 2005 (Matusevich, et. al., 2009). Hargett’s definition suggests that academic rigor is an essential characteristic of effective curriculum, instruction and assessment. Hargett also maintains that “when they are challenged, students learn to use the full range of their talents and intellectual abilities to address authentic and complex academic tasks in professional and real-life events. All students should have the opportunity to participate in an academically rigorous environment.” The following is the definition of academic rigor according to Valorie Hargett and the NCSBoE:

“These environments should engage them actively and consistently in sophisticated investigations of materials, texts, interactive technologies, and learning activities, requiring students to understand and apply advanced critical and creative processes. Rigorous academic environments represent true communities of learning, encouraging both students and teachers to be risk-takers engaged in experimental, investigative, and open-ended learning processes. Together, members of inquiry-based learning communities can utilize effectively their existing knowledge while striving to create new knowledge. In these rigorous learning environments, students accept greater responsibility for developing and applying a deep understanding of significant concepts, generalizations, essential questions, and skills and procedures to problem finding and problem solving for which there are no predetermined limits. An education reflecting these “nonnegotiables,” will result in students becoming lifelong learners and thinkers, capable of independent reflection, self-evaluation, and reasoning.”

In combination with the development of this definition, a rubric was developed ensure implementation and integration of academic rigor within North Carolina Public Schools. Please see Figure 1.

 The College Board, operating since 1901, is one of the most respected and trusted institutions of excellence in education, seeks to ensure that every student in the United States has access to a high-quality education and is prepared to succeed in college. The College Board upholds that the high quality of Advanced Placement curriculum is the result of numerous aspects. High school teachers submit syllabi to college faculty as part of a course audit, and to label a course “AP” a high school must demonstrate how the course meets or exceeds college-level curricular rigor and source requirements. Additionally, the AP exams are regularly benchmarked against the performance of students in introductory college courses, which include multiple-choice and free-response questions that determine whether students have achieved an in-depth understanding of a subject. The AP exams are scored by external panels of high school teachers and college faculty. Furthermore, AP teachers and students receive unprecedented diagnostic feedback from released AP test materials, including student responses and scoring commentary (Wakelyn, 2009). It is evident that the College Board emphasizes academic rigor through curriculum development applied in individual courses taught at the high school level, along with high-stakes testing.

 Interestingly, Saul Geiser, who is a prominent research associate at the Center of Studies in Higher Education at the University of California, Berkeley, does not necessarily agree with the definition of academic rigor suggested by the College Board. In a 2009 article, *Back to the Basics*, Geiser argues that over the last century, there are two schools of thought concerning “readiness for college.” The traditional view has emphasized *achievement*, as reflected in reward-and-incentive philosophy in which admission to college is a result of hard work, i.e. grades, test scores, etc. The alternative view suggests that students should be judged on their *ability* to learn, which is more closely associated with the SAT. Geiser argues that the older “College Board” had only tested knowledge of college-preparatory subjects, rather than emphasizing a student’s capacity for learning. Moreover, Geiser implies that many AP programs have served as an opportunity for a growing number of students to earn “bonus points” by enrolling in an AP course without passing or even taking the AP exam. Thus, allowing GPA’s to be boosted, advancing inflated admission profiles, and the further alienation of students from disadvantage districts which have limited AP programs. Geisner does admit that AP scores are a good predictor of success in college, as long as the courses are rigorous and develop students’ *ability* to learn and grow.

 Noticeably, one of the most challenging obstacles surrounding the integration of academic rigor includes the tedious work of sorting through the inconsistencies associated with establishing a definition of academic rigor. It must be understood that although there are nationally recognized designations of rigor, a more micro approach may be appropriate when attempting to implement rigorous curriculum reform. Although there may be a lack of cohesiveness regarding the definition of rigor, individual school districts should strive to find a functional definition that could be integrated to address the specific needs of the diverse student body within their community. The second half of the paper will attempt to explore how a well-established support system is vital for creating differentiated academic rigor.

**Differentiated Academic Rigor Must Include Well-Developed Support Systems**

Increasing academic rigor for all students should be considered a necessary goal for contemporary educators at all grade levels, especially the high school. Yet, before an immediate integration of rigorous academics can take place, school boards, districts, administrators, teachers, students and community members should work to create effective support systems capable of managing the demands associated with increased academic rigor.

 The Pathways to College Network firmly maintains that strategies to increase academic support must be put into place to ensure that all students receive the assistance needed to successfully undertake challenging work. Instruction should be more personalized and individualized, and include additional learning time in core subject areas. Additionally, tutoring support needs to be offered both during the school day and in after school, weekend and summer programs. Also, students must have the opportunity to participate in job shadowing placements, internships and community service projects to provide career awareness and connect learning to the real world (The Educational Resource Institute, 2007). Admittedly, these well-intentioned practices do appear to based only in theory rather than practical application. Melissa Campbell, who writes for the Hispanic Outlook in Higher Education, offers plausible options for more structured academic support systems.

 The Hispanic Outlook in Higher Education, according to Campbell, is also concerned with implementing a more rigorous academic curriculum within traditionally densely populated Hispanic schools. Currently, as many as 30-40% of students who enter college from these schools need remedial coursework, and as a result of this increasing trend, more schools are instituting a systematic college-preparatory curriculum. According to Michelle Asha Cooper, president of the Institute for High Education Policy, “rigorous academic standards can work to increase college success – as long as they are coupled with other elements. A rigorous curriculum can’t be the only thing we focus on…we can’t negate the social support students need as well as the financial support that is critical to so many students” (Campbell, 2010, p. 61). The Institute for Higher Education Policy has commissioned a paper, *Removing Roadblocks to Rigor: Linking Academic and Social Support to Ensure College Readiness and Success* to develop a unifying framework for how to align rigor with academic and social support.

The report has indentified five critical components that can and must be integrated within the matrix of higher academic standards. 1, *Emotional Support*: delivered through empathetic, caring and respectful interactions, builds self-esteem, trust and student engagement. Examples of emotional support include individual counseling, group and peer support, mentoring and other strong supportive interpersonal connections among students, parents, faculty and school staff. 2. *Instrumental Support*: is active and includes spending time with a student, helping him or her to achieve goals, or providing economic support. Examples include workshops focused on skills needed for college, outreach programs, summer bridge programs helping students adjust from middle to high school, and tutoring. 3. *Informational Support*: involves supply students with advice, suggestions, directives and information to help them meet their academic goals. Examples include academic advising, freshmen orientations, helping students navigate the admissions and financial aid application process, job shadowing, internships, placement services and campus visits. 4. *Appraisal Support*: provides frequent and timely assessments for students so they can receive affirmation, feedback, and social comparison regarding progress, allowing for appropriate intervention from faculty, parents and staff members. 5. *Structural Support*: refers to formal and informal structures that embed student support into social institutions and programs. Examples include after-school and summer programs, Advanced Placement courses, formalized study groups, and block scheduling (Campbell, p. 61-63). Cooper notes that many of these exist in schools today, however many may not be used to their full potential. Yet, with the right professionals in the appropriate organization, supportive systems can have a tremendous impact on creating successfully rigorous academic environment.

Additionally, during the past decade, the College Board has advocated that Advanced Placement courses be open to all interested students. Terry Grier, superintendent of schools in San Diego notes that “AP is not just for the elite; it’s for the prepared.” Since 2000, the federal government’s AP Incentive Program has provided $191 million in grants to 140 states and districts, to increase AP access and success among underrepresented students. As a result, AP enrollment has increased 72% in the past seven years. In the class of 2000, 405,000 seniors took at least one AP exam during their time in high school. In the class of 2008, that number was 758,000. Among African American students, the number of exams with scores at the mastery level has grown from 18,000 to 30,000; among Latino students, the number of mastery scores has grown from 63,000 to 110,500. Additionally, the AP program has created numerous programs for teacher training too better support the diverse needs of their students, as well as create incentive programs for students to encourage them to enroll in AP courses (Wakelyn, 2009). I can personally attest to the successfulness of these programs. I was fortunate enough to attend a forty-hour training session at Ball State University in 2007 which not only fully prepared me to teach an Advanced Placement course, but also afforded me the ability to be adequately equipped to support the diverse and sensitive needs of my students.

**Successful Integration of Differentiated Academic Rigor, Benefits and Specific Classroom Strategies**

 After exploring multiple definitions of academic rigor as well as illustrating the necessity of a structured support system, the final phase of this paper will examine instances of successful school environments which have adopted a rigorous curriculum along with practical instructional techniques.

 Two schools, Forest Grove High School in Portland, Oregon and Hillsdale High School in San Francisco, California, provide examples of how to successfully integrate rigorous coursework in mathematics and science classes. Both schools argue that access is inextricably linked to prior academic success, and that both math and science departments seeking to improve all students’ success in rigorous course work must attend to the academic preparation of students at all levels and in all grades (Rapheal & Kassissich, 2010).

 Forrest Grove High School, which serves a diverse student body (racially and economically), encouraged all of its students to enroll in AP classes without regard to GPA or teacher recommendations, resulting in the growth of twenty-four AP programs in 2010 compared to only seven in 2003. Initially, some parents expressed concern about the “dumbing down” of the curriculum by opening access to AP programs. Forest Grove students receive a combination of accelerated support and advanced learning opportunities at all levels. To address struggling student’s needs, the school instituted a required “math workshop” for incoming freshmen who scored below proficiency on the state achievement exams. Students receive elective credit for the course and are taught by the school’s best teachers who focus on ensuring mastery learning before students can move on to advanced math courses (Rapheal, Kassissich, 2010). Additionally, the mathematics department eliminated its honors track and retooled its regular mathematics offerings to make them more rigorous, increased teacher collaboration, and incorporated common final exams.

 Much like Forrest Grove, Hillsdale High School in 2000 was an unimpressive suburban high school with a diverse student body. Hillsdale focused on increasing academic rigor by embracing small learning communities as a strategy for increasing personalization for all students. Additionally, ninth-grade students shared a set of core teachers for their first two years, and each student was assigned an advisor with whom he or she met with several times a week to focus on academic, personal and lifelong learning goals. Principal Jeff Gilbert has noted, especially within the science department, “…how the teachers have adopted differentiated instruction as their key strategy in heterogeneous classroom, highlighting peer-to-peer teaching, project-based learning and tiered activities. In addition, they used literacy-centered instruction.”

 Through examining these schools, it is evident that increasing student success can be achieved by creating a differentiated rigorous academic curriculum in conjunction with a well-designed and well executed support system. The integration of an academically rigorous curriculum can be enormously beneficial for ensuring student success beyond high school. However, the definition of a rigorous curriculum must be differentiated to suit the specific needs of the individual district. Importantly, support systems must be firmly established prior to the integration of a newly developed rigorous curriculum in order to meet the sensitive needs of the individual learner. Lastly, administrators, faculty and support staff must work in closely organized communities to develop successful teaching strategies which foster rigorous work, build effective lessons, create effective assessments which accurately measure and reflect the rigorous teaching, and continually modify the curriculum as needed. Not finished yet, more examples of the benefits of differentiated academic rigor are needed as well as a few more teaching techniques.