INDEPENDENT SCHOOL DISTRICT #832

STUDY SESSION – BOARD OF EDUCATION

Thursday, June 25, 2009 - 7:00 PM

Mahtomedi District Education Center - Community Room

The Mission of the Mahtomedi School District No. 832, as a multi-community public school system, is to provide individually challenging, lifelong learning experiences for all people, leading to productive and self-fulfilling roles in a global society, accomplished through partnerships with students, families, staff and communities all committed to excellence.

- AGENDA -

1. CALL TO ORDER

2. ROLL CALL OF ATTENDANCE

3. DISCUSSION/INFORMATION ITEMS
   - A. PUBLIC FORUM - Proposed 2010-2011Schedule Change for High School — 2
     Presenter: John Deir and Denise Waalen
   - B. Update on Proposed Northeast YMCA Partnership
     Presenter: Tom Holland, YMCA

4. ADJOURNMENT

High School Cost Analysis Projections Summary

There are four documents for your review regarding the high school schedule change.

- The first document (Pg 1) is a breakdown of the expected staff development and textbook costs if we were to transition to a six period schedule.

  Denise Sundstrom and I have already budgeted half of the staff development funding needed for this option for the 09-10 school year, with the remaining allocation coming from 10-11. We will also benefit from having the Thursday staff development sessions throughout the school year.

  With regard to textbooks, we will not have a major curriculum adoption for the 2010-2011 school year, so funds normally set aside for curriculum review will be used for materials and books necessary, due to the schedule change. This is due to the fact that we have already been reviewing needs for the engineering standards which will be in effect for the 2011 school year.

- The second document (Pg 2) outlines the staff projections comparing the four period day to the six period day. We currently will have close to 31 students per class so the closest projection is "B" which offers a savings of $338,000 per year. If we would raise the class size to 32 students, the savings would be closer to $416,000 per year.

- The third document (Pg 3) is a proposal for the transition of required credits over the next five years.

- Finally, the fourth document (Pg 4) is the proposed requirements for the 6x2 schedule. As you can see the options for elective class choices increases significantly as the student moves through the high school. Direction from the board will help us to make changes if needed with reference to health and physical education, world languages, and the fine arts.

Mahtomedi High School
6x2 and 5x4 Comparison
Schedule Change Staff Development

Summer 2009
We anticipate similar needs for the 6x2 and 5x4 under summer work.

3 hours per faculty member

60 x 3 = 180 Hours

180 x $45 = $8,100

Work during school year 2009-2010
This will also be very similar for the 6x2 or 5x4 options.

Much of the planning can be accomplished through faculty workshops/staff development days and Thursday Staff Development days. No cost extra cost incurred to district.

Summer Work 2010 –We anticipate this need for the 6x2 schedule option only.

Work by departments with intensive changes to curriculum

30 teachers x 16 hours = 480 hours

480 x $45 = $21,600

Total cost = $29, 700. This cost has already been budgeted for in the 09-10 and 10-11 projections.

Estimated Cost of Textbooks = $168,240. This cost would be covered using current curriculum review and textbook funds. We will not be under review for any of the major curricular areas in 2010-2011 due to our progressive work with the science and engineering standards. This will allow funds to be used for additional needs at the high school and middle school. The cost for additional textbooks would be approximately $35, 000 should the district approve the 5x4 option.

Mahtomedi High School
Staffing Projections
Transition from Four Period Day to Six Period Day

Staffing	2008-09	2009-10	2010-11
Regular Ed.	55.083	52.000	48.000
Special Ed.	8.000	8.000	8.000
Counselors/MC	4.000	4.000	4.000
Admin.	2.2	2.0	2.0

Four Period Day

1200/31 = 39			

There are currently 39 sections with 31 students per period x 16 periods = 624 total sections/12 sections per teacher = 52.000 classroom teachers

Six Period Day

A. 1200/30 Students = 40 sections	
B. 1200/31 Students = 38.7 or 39 sections	
C. 1200/32 Students = 37.5 or 38 sections	

A. **40 sections per period x 12 periods = 480 sections/10 sections per teacher = 48.000 teachers or -4.000 teachers x $65,000 = $260,000**

B. **39 sections per period x 12 periods = 468 sections/10 sections per teacher = 46.800 teachers or -5.200 teachers x $65,000 = $338,000**

C. **38 sections per period x 12 periods = 456 sections/10 sections per teacher = 45.600 teachers or -6.400 teachers x $65,000 = $416,000**

6x2 Schedule Proposed 5/28/09
Graduation Requirements during Transition from 00344 to 6x2

Academic Area	Required Credits Class of 2010	Required Credits Class of 2011	Required Credits Class of 2012	Required Credits Class of 2013	Required Credits Class of 2014
English	4.5	4.5	4.0	4.0	4.0
Social Studies	4.0	4.0	3.5	3.5	3.5
Science	3.0	3.0	3.0	3.0	3.0
Math	3.0	3.0	3.0	3.0	3.0
PE	1.0	0.5	0.5	0.5	0.5
Health	0.5	0.5	0.5	0.5	0.5
Fine Arts	1.0	1.0	1.0	1.0	1.0
General Pool	1.5	0	0	0	0
Electives	10.5	10.0	9.5	7.5	6.0
Total	29/32	27/30	25/28	23/26	21.5/24

5

5x4 Schedule Proposed 5/28/09

Academic Area	Required Credits Class of 2010	Required Credits Class of 2011	Required Credits Class of 2012	Required Credits Class of 2013	Required Credits Class of 2014
English	4.5	4.5	4.0	4.0	4.0
Social Studies	4.0	4.0	3.5	3.5	3.5
Science	3.0	3.0	3.0	3.0	3.0
Math	3.0	3.0	3.0	3.0	3.0
PE	1.0	1.0	1.0	1.0	1.0
Health	.5	.5	.5	.5	.5
Fine Arts	1.0	1.0	1.0	1.0	1.0
General Pool	1.5	0	0	0	0
Electives	10.5	14.0	17.0	18.5	20.0
Total	29/32	31/34	33/36	34.5/38	36/40

Mahtomedi High School
Proposed Requirements for 6x2

9th Grade

English	English
Social Studies	PE/Health
Science	Science
Math	Math
Elective	Elective
Elective	Elective

10th Grade

English	English
Social Studies	Social Studies
Science	Science
Math	Math
Elective	Elective
Elective	Elective

11th Grade

English	English
Social Studies	Social Studies
Science	Science
Math	Math
Elective	Elective
Elective	Elective

12th Grade

English	English
Social Studies	Social Studies
PE/Health	Elective
Elective	Elective
Elective	Elective
Elective	Elective

Requirements: 22/24 Credits to Graduate – Required = 13.5 Credits

English 4.0 Math 3.0
Social Studies 3.5 Science 3.0

Others/Electives: 8.5 Credits

Health/PE 1.0 or 1.5 (1.0 = one Health/PE Class for 9th and one for 12th of one semester each or 1.5 with athletic exemption for varsity sport)
World Languages
Fine Arts

Credit Information for Graduation
Total credits required for graduation, 29,
Currently offered at the MHS, 32.

Department/Course	***Credits Required for Graduation***
English/Language Arts	**4.5 in Mahtomedi** 4.0 State Requirement State standards requirement for curriculum
Mathematics	**3.0 Mahtomedi and state** State standards requirement for curriculum Will most likely increase to **4** at the U of M next year…
Health/Physical Education HS Administration is interested in offering a basic PE for grades 9/10 for .5 and then offering an advanced level class or sports participation credit for another .5 They believe the depression screening, diet, lifelong nutrition information, CPR and basic first aid skills are very important components for Health.	**1.5 Mahtomedi (1 credit PE and .5 health)** 1.0 State requirements, .5 each Secondary - instruction must be provided to all students at least once in 9-12 for .5 credits each In grades K-8 phys. ed. instruction must be given to all students each year; in grades K-8 health instruction must be given each year or by district-determined grade bands.
Science	**3.0 Mahtomedi and state** State Standards requirement for curriculum Must include one in biology
Social Studies	**4.0 in Mahtomedi** 3.5 requirement for state which must include economics State Standards requirement for curriculum
Fine Arts	**1.0** Art or Music… local or **state** standards may be used
General Pool	*Eliminated for 2009-10*
Electives	**12** Credits in Mahtomedi Must offer at least 7 by state mandate…includes Career and Tech Education / World Languages. We must **offer** classes but whether they are required for graduation is a local decision. Most post secondary schools require at least 2 years of World languages…should this be a MHS requirement?

*June 25, 2009 School Board Session

Principal's Research Review

Supporting the Principal's Data-Informed Decisions

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Predicting Postsecondary Success

By Jacqueline Raphael and Jim Kushman

Secondary school leaders are under tremendous pressure to better prepare high school students for the challenges of life after high school. As states raise academic standards and graduation requirements:

> The link between strong academic preparation in high school and success in college and careers is clearer than it has ever been. Whether high school graduates go directly to college or into the workplace, they need advanced skills if they are going to be successful (Peltzman, Vranek, & Bodary, 2007, p. 1).

The primary tool for enhancing the value of a high school diploma is a more intensive curriculum that includes more credits in core academic subjects and more advanced coursework. How does the secondary school curriculum affect students' college readiness and opportunity for success? Descriptive studies and statistical analyses reveal a fairly consistent association between higher level coursework, particularly in mathematics and science, and positive postsecondary outcomes. However, advanced course taking cannot be regarded as a silver bullet.

Advanced course taking cannot be regarded as a silver bullet.

High School Course Taking and Future Success

Many large-scale descriptive studies show that increases in state graduation requirements have led students to earn more credits and complete more advanced coursework in core academic subjects. Between 1982 and 2004, the average number of high school credits earned increased from 21.7 to 25.8, with much of the increase in more advanced

Just the Facts

- ACT researchers went on to analyze the rate of growth of middle through high school students and concluded that helping grade 8 students achieve better academic performance would provide more benefits than any other intervention undertaken in high school (ACT, 2008).
- For too many students, "targeted interventions during high school years come too late," concludes ACT, suggesting the need for an earlier and more comprehensive start in preparing students for college and careers (ACT 2008, p. 40).
- Course taking "is a means to an end, not an end in itself" (Loveless, 2008, p. 3).
- To determine proficiency, Conley suggests asking, "If a student mastered the required content in this course and all the courses leading up to it, what would he/she be able to do? (personal communication, January 5, 2009).

National Association of Secondary School Principals

mathematics and science (U.S. Department of Education, 2007). Specifically, the percentage of graduates who had completed at least one course more challenging than Algebra II increased from 26% in 1982 to 50% in 2004. The percentage of graduates who had completed at least one science course more challenging than general biology—typically chemistry and/or physics—went from 35% to 68% in the same period.

Although rigorous course taking has increased, there are still disparities in who takes those courses. In 2004, female students took more rigorous courses than males (U.S. Department of Education, 2007). Asian/Pacific Islander (69%) students took more advanced courses than White (54%), Black (42%), Hispanic (34%), or American Indian (22%) students.

Some studies focused on student achievement in grade 12, a potential indicator of college readiness. Scores on grade 12 mathematics and science tests of the National Assessment of Educational Progress (NAEP) were highest for students completing a more rigorous curriculum, with four years of English and mathematics (including precalculus or higher); three years of science (including biology, chemistry, and physics); and three years each of social studies and a foreign language (Shettle et al., 2007). However, some students who had completed physics or more advanced science coursework did not reach the proficient level on the NAEP. Similarly, students who completed advanced mathematics beyond Algebra II (though not calculus) failed to reach the proficient level.

To better understand the effects of course taking, researchers examined whether completing a more demanding high school curriculum is associated with college readiness, college entry, and/or degree completion. Adelman (2006) isolated and analyzed the relationship between high school course taking and bachelor's degree completion. Analyzing transcript data from a large national sample of eighth-grade students in 1988, Adelman followed the students until age 26 to produce a long-term student outcome. He included many variables and used regression analysis to estimate how each variable contributed to student momentum toward earning a bachelor's degree. Adelman found that curricular intensity in high school—a scaled measure of academic challenge describing the number and level of course credits earned—was more strongly associated with bachelor's degree completion than any other variable, including demographics.

When controlling for socioeconomic status and other background factors, rigorous course taking still predicts college completion. Mathematics courses, particularly beyond Algebra II (e.g., trigonometry, precalculus, calculus), provided the greatest benefit: Students who took these courses were more than twice as likely to graduate from college as those who did not. The degree completion rates of Black and Hispanic students were more positively affected than those of any other student subgroup. Overall, 95% of students at the highest level of Adelman's curricular intensity scale earned bachelor's degrees within the eight-year tracking period.

Using other statistical methods, some researchers have confirmed that a more demanding curriculum, especially one including higher levels of mathematics and science, appears to be associated with increased grade 12 student achievement (a proxy for college readiness) and/or postsecondary success (Attewell & Domina, 2008; Bozick & Ingels, 2008; Chaney, Burgdorf, & Atash, 1997; Hoffer, 1997; Horn, Kojaku, & Carroll, 2001; Leow, Marcus, Zanutto, & Boruch, 2004). Several studies hint that the *level* of coursework is more important than the *number* of credits earned in a subject (Chaney et al.; Hoffer). Some studies, including Adelman's, discuss unequal opportunity to learn across schools. The research on the effects of college-level programs in high school, such as AP and dual enrollment, is still emerging. One study found that students who perform well on AP exams have better college grades and graduation rates, but that the same does not hold for students who take AP courses without taking the exams or who receive low scores on the tests (Geiser & Santelices, 2004).

Caveats and Considerations

Some research suggests a need for caution in interpreting the benefits of advanced course taking. Attewell and Domina (2008) hypothesize that the as-

sociation between advanced course taking and future success could have more to do with college admissions practices than with student learning in these courses. They suggest that college admissions officers may view advanced coursework as evidence of the students' superior academic rank relative to their peers. Because only a small percentage of students enroll in advanced courses, the coursework may serve as a signal to admissions officers. If so, then as a broader range of students take advanced courses, the benefits may diminish. To support this hypothesis, Attewell and Domina point out that in Adelman's 1999 study, which examined the high school class of 1982, completion of Algebra II and trigonometry was associated with higher degree completion rates. However, in Adelman's 2006 study of the class of 1992, Algebra II and trigonometry were not associated with better degree completion. Students had to complete even higher level courses—precalculus or calculus—for the association to hold. This suggests that as more students complete advanced coursework, the value or benefit of taking these courses may lessen.

Another factor to consider is the level of content mastery. Some researchers have found evidence of course credit inflation, similar to grade inflation (Dougherty, Mellor, & Jian, 2006; Hoffer, 1997). As states raise their graduation requirements and schools face the possibility of denying diplomas, greater percentages of students may earn credit despite a failure to learn the course content. Consequently, the level of content mastery decreases, lessening the association between advanced coursework and positive student outcomes. This may not have been the case for the student cohorts studied by Adelman—high school graduates of 1982 and 1992—who

> attended high school in an era when a relatively thin stratum of the best-prepared students took advanced courses. Under these circumstances, students who received credit for advanced courses were relatively likely to have mastered the content implied by the course titles, and there was relatively little impulse to water down the course content to meet the need of poorly prepared students (Dougherty et al., p. 3).

Research also suggests that low-income and minority students in urban schools may be more negatively affected by course credit inflation. Loveless (2008) studied efforts across the country in the nineties to enroll more grade 8 students in Algebra I, putting them on the path to higher level coursework in high school. These efforts resulted in a near doubling of the percentage of grade 8 students taking Algebra I between 1990 and 2007. Loveless found that despite steady increases in national grade 8 NAEP mathematics scores between 2000 and 2007, the scores of grade 8 students enrolled in advanced mathematics classes actually declined.

A group of students Loveless called "misplaced" math students scored in the lowest (10th) percentile. They were more likely than other students to be poor and minority and to attend large urban schools staffed by teachers with less experience and training. Similarly, although Chicago's 1997 decision to raise high school graduation requirements well above those of the state actually led to *increased* graduation rates during the next few years, the results proved somewhat superficial: subsequent analyses showed that Chicago students' academic achievement was significantly lower than that of students from the rest of the state (Roderick, Allensworth, & Nagaoka, 2004; Presley & Gong, 2005).

Several design features of the course-taking studies also limit the scope of their findings. Although the researchers took pains to control for prior achievement and other student background characteristics, unknown or unmeasured variables—such as the discipline required to persist in advanced coursework—may well explain why students completing advanced courses are more likely to complete bachelor's degrees than other students. Another factor is that course titles do not represent a consistent quantity. As Adelman (2006) found, "in some high schools, 'precalculus' on a transcript could mean any mathematics prior to calculus, including Algebra I" (p. 104).

In sum, the association between advanced course taking and increased college readiness or success does not mean advanced course taking *causes* students to be more college ready or successful, only that completing demanding high school coursework appears to predict, or increase the probability, that some students will achieve these outcomes. Further—the association is not universal across all students or all coursework, and some research suggests the relationship may change over time.

A Direct Measure of College Readiness

Does high school coursework prepare students for college or careers? Researchers at ACT, which designs and administers the ACT college admissions test, have worked with postsecondary faculty members from across the country and conducted many analyses that were based on years of tracking ACT test takers. In each ACT subject area, researchers identified minimum cutoff ACT scores required for students to have at least a 75% chance of earning at least a C and a 50% chance of earning at least a B in a first-year college course in the subject. Though not a direct measure of the skills and knowledge required for college, these college readiness benchmark scores estimate students' probability of success in their first year of college.

By including self-reported high school transcript information from ACT test takers in their analyses, ACT researchers found that only 26% of students who completed the college preparatory core curriculum (i.e., four years of English and three years each of mathematics, science, and social studies) were ready for college-level work in all four core areas (ACT, 2007). Another 19% were not adequately prepared in any of these areas. Although students who completed the core did better on average than those who didn't, it wasn't sufficient. Further, ACT researchers found that many students still did not appear ready for college despite taking mathematics beyond Algebra II, the biology-chemistry-physics science sequence, and English and social studies courses in addition to the recommended core curriculum. As many as 60% of students in science, 40% in social studies, and approximately 25% in mathematics and English (ACT, 2007) failed to achieve scores that predicted success in first-year college coursework.

These results suggest that students are not gaining the advantage that those courses ought to provide. Indeed, Greene and Winters (2005), defining college readiness based on the minimum requirements for admission in the least selective four-year colleges, also concluded that only 34% of all students who were scheduled to graduate from high school in 2002 were college ready. About 40% of White graduates were college ready compared with 23% of Black and 20% of Hispanic graduates.

Through development of additional tests, ACT researchers more recently extended their college readiness measurement system to lower grade levels, yielding important information about learning gaps. Their grade 8 test assesses whether students are "on track" to achieve college-ready ACT scores several years later. Recently, ACT found that only about 20% of grade 8 students who took the test nationally were on track (2008) for college readiness as measured by the ACT test. Further, they found that the grade 8 test scores showed the strongest association with subsequent ACT scores than any other factor, including high school coursework, grades, and family background. This association held for students in different racial or ethnic groups and of varying family socioeconomic status. ACT researchers went on to analyze the rate of growth of middle through high school students and concluded that helping grade 8 students achieve better academic performance would provide more benefits than any other intervention undertaken in high school.

These findings suggest that the source of poor college readiness may be found before students enter high school. Grade 8 students who are unprepared for demanding *high school* courses do not gain the momentum from high school coursework that they need to recover and achieve college and career readiness. Indeed, course failures in grade 9 can be used to predict who will drop out (Allensworth & Easton, 2007). For too many students, "targeted interventions during the high school years come too late," concludes ACT, suggesting the need for an earlier

and more comprehensive start in preparing students for college and careers (2008, p. 40).

Getting Ahead of the Curve

Course taking "is a means to an end, not an end in itself" (Loveless, 2008, p. 3). Secondary school leaders should encourage students to take college preparatory courses, including AP, International Baccalaureate, and dual-enrollment programs. But "simply increasing the prescribed courses students take may not be sufficient, particularly for students who attend high schools with low academic standards and expectations" (Conley, 2007, p. 8). Course credits and titles on transcripts alone do not guarantee that students are prepared for college or the workplace. A more fundamental shift toward strengthening course content is required.

Conley (2005) and others call for a more "intellectually coherent" high school experience. Unlike students in other countries, U.S. students are often taught in "discrete units, with little connection across the day or across the years" (p. 73). Even in mathematics, where there is a sequence of learning, "each course largely follows the same pattern of introducing new material, algorithms, or methods, having students practice them in homework, and then reviewing the homework in class" (p. 74). High schools need "a well-designed academic program and curriculum that progresses from 9th through 12th grade, both in the content covered and the intellectual skills developed" to avoid entering college with only "pockets of knowledge and skill" when they need the ability to carry out complex cognitive challenges (pp. 7–8).

Through a three-year project sponsored by the Association of American Universities, Conley (2005) worked with faculty members from 28 universities to establish college readiness standards. In *College Knowledge* and subsequent work, Conley (2005; 2007) lays out knowledge standards in six content areas and cross-disciplinary cognitive strategies. The critical thinking and problem-solving skills he found lacking among first-year college students were strikingly similar to those found by postsecondary faculty members involved in similar efforts (Conley, 2007). These include the ability to deal with contradictory information, such as two different explanations of the same phenomenon or event. High school curricula often focus on helping students determine the correct answer instead of developing a capacity for interpretation. Students should be able to analyze competing explanations of events to determine their strengths and flaws and the commonalities and differences between them. Other key cognitive strategies include analysis, problem solving, precision and accuracy, argumentation, intellectual openness and inquisitiveness, and academic skills such as writing and research.

Next Steps

Secondary school leaders who want to align their curriculum more closely with college-level demands cannot accomplish this all at once. A first step is to identify the extent of state-level activity in postsecondary readiness initiatives. One resource is the American Diploma Project Network (www.achieve.org/ADPNetwork), which is helping many states tie their standards and assessments to college and career expectations. Using state standards and established college-readiness standards and resources, secondary school leaders can work with their staff members to focus on specific college-level skills and knowledge. Collaborating across disciplines and grades, secondary schools can proceed at their own pace to start bringing greater coherence and rigor to the curriculum.

An important first step for high school staff members is to agree on skills or proficiencies across content areas. Secondary school leaders and staff members will need to ensure that all students have an opportunity to learn these skills and provide the necessary scaffolded support. This should start earlier than high school. Districts need to identify upper elementary and middle level students who are at risk for not achieving high school success. According to John Kraman of Achieve, an organization that helps states raise academic standards and graduation requirements, the goal is to ensure that *all* students are sufficiently supported, throughout their education, to be able to meet grade 12 benchmarks for the skills

College Readiness Standards and Resources

Achieve's American Diploma Project Benchmarks
www.achieve.org/ADPbenchmarks
The American Diploma Project benchmarks define what students should know and be able to do by the end of high school in K–12 mathematics and grades 4–12 English language arts.

Education Policy Improvement Center
www.epiconline.org
David Conley worked with faculty members from 28 universities to establish a set of cognitive skills and subject-area knowledge students need to succeed in college.

ACT's College Readiness Standards
www.act.org/standard
ACT has developed research-based descriptions of what students are likely to know and to be able to do based on their scores on the College Readiness System.

ACT and Education Trust's *On Course for Success*
www.act.org/research/policymakers/reports/success.html
Includes sample syllabi and course descriptions from an examination of 10 high schools with challenging student populations that succeeded at fostering greater access to college.

College Board Standards for College Success
http://professionals.collegeboard.com/k-12/standards
Defines a developmental progression of rigorous learning objectives for six courses in middle level and high school that will lead all students to being prepared for AP or college-level work.

they need for success in postsecondary education and the workplace (personal communication, January 23, 2009).

To determine proficiency, Conley (personal communication, January 5, 2009) suggests asking, "If a student mastered the required content in this course and all the courses leading up to it, what would he/she be able to do?" The answer—for example, a multi-part problem to solve or paper to write—should combine learning from several related disciplines and represent an example or illustration of college-level student learning.

Finally, secondary school leaders can reach out to local businesses and two- and four-year colleges to learn about the perceived strengths and deficiencies of their graduates. Secondary school leaders can also encourage their teachers to meet with postsecondary faculty members to review specific proficiencies and student work samples. They can even collaborate on the design of coursework.

Although advanced course taking can develop knowledge and skills that help students succeed in the future, efforts need to start early and be focused and coordinated. The nature and quality of coursework must be aligned with more challenging demands, and more must be done to ensure that students master the content of their courses. PRR

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