# Appendix D: Documents Referred to in Section 2

**Appendix D.1. Example of common core math professional development offered by the Warner Center for Professional Development and Education Reform**

# "Digging Deeper into the CCSSM: Algebraic Thinking in High School" Institute Overview

WARNER
SCHOOL OF EDUCATION
UNIVERSITY of ROCHESTER

In this 4-day, 30 hour institute participants have opportunities to engage in mathematical experiences related to the development of the concepts and skills of the algebra strand that are expected of secondary students under the CCSSM. Participants use the Progressions Documents related to algebra (Progression on 6-8 Expressions and Equations; Progression on High School Algebra; Progression on High School Functions; http://ime.math.arizona.edu/progressions/) and the "Developing Essential Understandings" series from NCTM to ground their experiences. Participants have opportunities to reflect on how to support ALL students in developing un2.1x OR derstanding of algebraic concepts and skills and consider implications for their own instruction through the creation of an "action plan".

This institute was designed based on knowledge of effective professional development design and implementation (e.g., Louckes-Horsley, 1996; Borasi & Fonzi, 2002; Darling-Hammond et al, 2009; Sztajn, Marongelle & Smith, 2012). In particular, as recommended by this literature, this professional development institute is intensive, ongoing, and connected to practice; focuses on student learning and addresses the teaching of specific content (in this case "algebra"); aligns with school improvement priorities and goals (in particular CCSSM implementation); and is designed to build strong working relationships among teachers.

Participants have opportunities to engage in mathematical experiences related to the development of number and algebraic thinking in the Common Core and engage in and reflect on the Standards for Mathematical Practice, particularly related to algebra and algebraic thinking. In particular, throughout the 4 days, participants engage in mathematical experiences related to the following CCSS: 6.EE.1-9, 7.EE.1-4, 8.EE.1-8, 8.F.1-5, A.SSE.1-4, A.APR.1-7, A.CED.1-4, A.REI.1-12, F.IF.1-9, F.BF.1-5, F.LE.1-5.

## Institute Goals

- Recognize the "big ideas" of algebra and develop strategies to make these ideas more accessible to students
- Deepen content knowledge of algebraic concepts and reasoning through mathematical experiences
- Better understand how the CCSSM content standards and standards for mathematical practice support development of student understanding of algebra and algebraic reasoning
- Re-consider what it means "to do algebra"
- Recognize the impact that the CCSSM has on instructional practice

In order to support participants' learning related to these goals they engage in carefully sequenced and supported experiences that include:

- The use of readings to support participant learning and bring in relevant research and mathematics from other sources (e.g., the Progressions documents, NCTM Essential Understandings series);
- Engaging in mathematics as genuine learners in a supportive learning community;
- Engaging in mathematical discourse sharing solutions and strategies and examining others' work;

- A focus on "big ideas" in mathematics and examining the CCSSM Content Standards both within own grade level and beyond to see how these "big ideas" play out in CC;
- Opportunities to view video, read cases or examine their own experience to look for and discuss evidence of Standards for Mathematical Practice and to gain an image of what a CC classroom could look like;
- Examining student thinking through written and video case discussions;
- Reflection on their own learnings and implications for their practice;
- Time to work on developing an action plan individually and in small groups.

## DAY 1

Introductions; Course Goals; CCSSM Overview

What does it mean to "understand" mathematics? (using Wiggins & McTighe and CCSS descriptors)

Introductory Algebra work grounded in the "Progressions on High School Algebra" (http://ime.math.arizona.edu/progressions/)

Engaging in mathematics as learners and examining student work to explore:

- The Concept of Variable (6.EE.2, 6.EE.6, 6.EE.9)
- Seeing Structure in Algebra (A.SSE.1, A.SSE.3)
- Solving Linear Equations and Inequalities using technology (7.EE.1, 8.EE.5, 8.EE.7, 8.EE.8, 8.F., 8.F.3, 8.F.4, 8.F.5, HAS.CED.1, HAS.REI.3)

**Homework:**
Read the "Progressions for High School Algebra" and reflect on the following:

- What is the vision that the authors of CCSSM have for high school algebra?
- How is this vision different from what has been important traditionally in high school algebra courses?

## DAY 2

Progression Discussion from HW; Institute Norms

Standards for Mathematical Practice: How do the practices impact instruction?; Reading and responding to the practices through the lens of student engagement and teacher moves

Exploring Functions

- The Big Ideas of Functions from "Developing Essential Understandings of Functions 9-12" (NCTM)
- Engaging as Learners: Exploring Linear Functions and Recursion considering the themes of focus and coherence (7.RP.1, 7.RP.2, 8.EE.5, 8.EE.6, 8.EE.7, 8.EE.8, 8.F., 8.F.3, 8.F.4, 8.F.5, HSF.IF.3, HSF.IF.9, HSF.BF.1, F.BF.2, HSA.CED.1, HSA.REI.3)
- Examining student work

**Homework:**
Read the Progressions for High School Functions pgs 1 – 16 and reflect on the following:

- How are the CC themes of focus and coherence evident in the high school functions progression?

Read p.7-22 of "Developing Essential Understandings of Functions 9-12" and reflect on:

- What is it about the definition of functions that students should understand?

Read p.78-83 and reflect on: How does multiple representation support the understanding of functions?

## DAY 3

HW Discussion

Modeling as a Practice (SMP4)

- Modeling Linear Relationships and building on students' prior knowledge: Using reasoning to solve systems of linear equations (7.EE.1, 8.EE.5, 8.EE.7, 8.EE.8, 8.F., 8.F.3, 8.F.4, 8.F.5, HSA.CED.1, HSA.REI.3)

Engaging as learners: Exponential Functions (HSA.LE.1, HSA.CED.1, HSA.REI.11, HSF.IF.7, HSF.IF.8, HSF.BF.1)

- What is an exponential function? What are the defining characteristics of an exponential function?
- Modeling Non-Linear Relationships in Context: A Vignette - Using Student Discourse
- Modeling exponential relationships

Examining rich mathematical tasks and their implementation (based on the work of Peg Smith): Characteristics of "high cognitive demand tasks"; Factors associated with the maintenance and decline of high cognitive demand tasks; and what the research tells us.

Considering Assessment: Looking at PARCC and NYS released items

**Homework:**
Read the summary of the Henningsen and Stein research, "Supporting Students' High Level Thinking, Reasoning, and Communication in Mathematics" and reflect on the following:

- Why do you think the factors identified by Henningsen and Stein led to the maintenance or decline of "doing" mathematics? How can we create a classroom culture that promotes the maintenance of high cognitive demand?

Read "Exponential Functions" pgs 53-59 in "Developing Essential Understandings of Functions 9-12" and reflect on the following:

- What are the defining properties of exponential functions? Why are exponential functions receiving new emphasis in the CCSSM? Why have exponential functions been largely ignored in most state standards, in mathematics curricula, and in assessments?

## DAY 4

Homework Discussion Part 1: Exponential Functions

Looking Deeper at Exponential Functions

- What does the following statement mean: "Exponential functions are characterized by a rate of change that is proportional to the value of the function"?

Comparing linear and exponential functions: A Look at the Content Standards (HSF.LE.1, HSF.LE.2, HSF.LE.3, HSF.LE.5)

Quadratic Functions (HSA.SSE.1, HSA.REI.4, HSA.CED.1, HSA.IF.7-9, HSA.LE.1-3,5,6)

- Using context and technology to solve quadratic equations leading to the quadratic formula
- Quadratic Polynomials—Access to concepts
- Examining student work to identify algebraic reasoning

Homework Discussion Part 2: Tasks and Cognitive Demand

Modeling (SMP4 and CCSS HS Modeling Standards)

- The Modeling Cycle
- Engaging in mathematics as learners: Using Modeling to solve a problem

Individual Action Plans

Sharing Professional Commitments

Course Evaluations

## Appendix D.2: Understand by Design Template *(modified for Hattie Six)*

*Last modified 10-12-14*

**Lesson Topic:** _____ **Grade level:**_____

**Length of lesson:** _____ **Teacher name:** _____

<table>
<tr><th colspan="4">Stage 1 – Desired Results</th></tr>
<tr><td></td><td colspan="3"></td></tr>
<tr><td rowspan="5">External Standard(s):</td><td colspan="3">Essential Question:</td></tr>
<tr><td colspan="3">Long term goal (transfer goal):</td></tr>
<tr><td colspan="3">Understanding goal (meaning-making goal): Students will understand THAT</td></tr>
<tr><td colspan="3">Kid version:</td></tr>
<tr><td colspan="2">Skills (acquisition goal):</td><td>Content (acquisition goal):</td></tr>
<tr><th colspan="4">Stage 2 – Assessment Evidence</th></tr>
<tr><td>Criteria for evaluation:</td><td colspan="3">Performance of understanding:<br><br>Level of challenge:<br><br>Other Evidence:<br><br>Level of challenge:</td></tr>
<tr><th colspan="4">Stage 3 – Deliberate Practice</th></tr>
<tr><td>Acquisition Activities:</td><td>Level of challenge:<br><br>Collaboration:<br><br>Reflection or metacognition:</td><td>Meaning – Making Activities:</td><td>Level of challenge:<br><br>Collaboration:<br><br>Reflection or metacognition:</td><td>Transfer Activities:</td><td>Level of challenge:<br><br>Collaboration:<br><br>Reflection or metacognition:</td></tr>
<tr><td colspan="2">Feedback opportunities:</td><td colspan="2">Feedback opportunities:</td><td colspan="2">Feedback opportunities:</td></tr>
</table>

**Double Planning:**

*Start with active and clear verbs, include exactly who (and how many) are doing what*

| Students | Mins. | Teacher |
|---|---|---|
| **Hook: = attention getter** *function of hook is to get every student's attention on the topic at hand* | | |
| **Bridge:** *this is where attention getting turns to specific content learning* | | |
| **Deliberate practice:** *(will include acquisition, meaning-making, and transfer activities at specified level of challenge, opportunities for feedback; and gradual release of responsibility, CODE, or other intentional sequence)* | | |
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| **Ticket Out the Door:** *must align to learning goal, can be summative or formative, watch level of challenge* | | **Ensure test security** *this is a major issue for TOTDs; without this, they are meaningless & a waste of time: teach students why* |

# Appendix D.3: Academic Support at East 2015-2016

| *support* | *Notes, including when* | *Who provides* | *Who receives and where* |
|---|---|---|---|
| Second period of ELA | Grades 6-9<br>Students grouped by readiness based on NYS test scores or better resources as available *(see new Fountas & Pinnell assessment for middle school)*<br>Workshop model; students trained to use stations, mini lessons on core skills, self-directed independent reading and writing. Grouping allows lowest students to receive additional supports in reading groups; allows top groups to receive pre-AP type skill work to prepare for more advanced work, such as AVID strategies.<br>*Note: this is not additional time to complete the ELA curriculum.* | Certified literacy specialists are the first choice; in some cases possibly English teachers or other certifications (library, sp & lang) could be appropriate based on skills; additional teachers push in.<br><br>PD will be required for effective implementation of reading and writing groups in the workshop model.<br><br>Expeditionary Learning and Warner Center can support. | All students grades 6-9; top students will either continue to receive pre-AP support work or may be able to add an elective<br><br>In classrooms |
| Second period of math | Grades 6-9<br>Student grouping to be determined. *Note: This is an extension and support for the Connected Math and Meaningful Math curriculum.* | Certified math teachers<br>*Will be supported by the Warner faculty.* | All students grades 6-9* in classrooms<br>This could be modified in grade nine so that accelerated students in grade 8 can add an elective. |
| Integrated co-teach (ICOT) | Second adult in the classroom<br>Certified special education teacher<br>Provides modifications and differentiation in a co-teaching model | Certified special education teachers in gen ed classes | Students with IEPs who have direct services on IEP; in classrooms |
| Support periods | Determined together at the grade level team meetings which students should have a support period and for what intensity<br>Can add support periods throughout the day; students come out of study halls usually; safe haven | Special education teachers with support from teacher assistants, and paras | SWD with CT on their IEP; 504; and non-labeled students in need ("scoop" kids). Rooms are designated as support rooms. May prevent labelling. |
| Club 22 | Table top tutoring<br>During the school day; after school<br>Certified content area teachers present each period;<br>Warner and community volunteers added here, would require training | Retired content area teachers; East teachers as administrative assignment; trained volunteers from East community, alumni, University of Rochester | Any student who requests it; in the former faculty cafeteria |

| | | | |
|---|---|---|---|
| Compacted Classes (formerly review classes) | Credit recovery<br>Offset schedule for students<br>Double/triple periods<br>Allowed to exit as standards are met OR<br>As required exam is passed | East teaching staff as part of their assignment.<br><br>Both during the school day and after. | Students who have met seat time requirements; in classrooms |
| East Evening | Fully functioning night school allows students to pursue credit recovery or offset schedule to accommodate various needs | East Evening will be fully staffed with certified teachers | Any student; primarily over-age, under-credited students; in classrooms (separated?) |
| Online credit recovery | Programs such as Right Reasons Technology supplement support rooms, compacted classes, after school tutoring, and Club 22 | Support teachers, after school service providers, teachers on administrative assignment | Grades 9-12<br><br>Anywhere: web based |
| After school recreation and tutoring | Combination social, recreational, and academic support after school for two hours; can work around students in sports or other clubs | Current program in place through East for grades 7 & 8; Faculty to be hired or partners to be contracted with *e.g. EnCompass* | Grades 6-8<br><br>*On site using facilities. May need kitchen, gym space, computers, SmartBoards, classrooms.* |
| Review classes | Groups of 10, one hour a day | EnCompass is one potential service provider. Both during the school day and after. We will also run our own classes. | Over age under credit freshmen is first target group. |
| tutoring | Academic and social support with a family link | Hillside | Designated students<br><br>On-site and off-site |
| Tutoring and social agency connection support | EnCompass has a caseload of students and works with student and home/school connection | EnCompass | Designated students<br><br>offsite tutoring 2:30 – 4:00 MCC downtown campus |
| tutoring | IBERO does tutoring; College Prep center from UR all day and after school essays and resumes. | IBERO, University of Rochester | Designated students<br><br>East classrooms |
| Summer HS | Upward bound | Kearns Center summer program 165 students: half go to East | summer program |
| Science | Science STARS program | Warner Center April Luehmann since 2006 | East MS girls grades 7-9 |
| Summer program | Horizons: six week summer program | Warner School serves city school children | RCSD K-8<br>At Warner School |

# Appendix D.4

# Guiding Criteria and Informational Material

*As of 9-14-14*
*(this is a living document)*

# 10 Curriculum Components

# of

# *Schooling by Design*

## Wiggins & McTighe

# 10 Curriculum Components of *Schooling by Design*

| Curriculum Component | Design Standards | Avoids Problem of... | While Providing... |
|---|---|---|---|
| 1. Statements of Mission, Philosophy and Learning Principles | • Mission articulates the vision of what schooling strives to accomplish in terms of long-term achievements.<br>• Philosophy states shared assumptions and beliefs about education and learning.<br>• Learning Principles specify research-based beliefs to guide educational decision-making and curriculum design. | • Lack of clarity about content priorities<br>• Treating the school Mission as an idealistic statement that has nothing to do with "our real work"<br>• Key transfer goals and "habits of mind" falling through the cracks of instruction<br>• Idiosyncratic and personalized decision making (e.g., "I have always done it this way") | • An agreed-upon Mission to clarify the larger aims of schooling<br>• Agreed-upon learning principles to guide instructional practices and curriculum design<br>• Collective beliefs about learning to serve as the standards for making "depersonalized" educational decisions |
| 2. K-12 Program Goals, Overarching Understandings and Essential Questions, and Content Standards for each Discipline | • Program goals are clearly identified and serve to ensure curriculum is focused on long-term priorities.<br>• Understandings and essential questions provide the conceptual armature to guide course and unit design.<br>• Established content standards are "unpacked" to identify the "big ideas" (understandings) and companion essential questions.<br>• Clear alignment is established among standards, understandings and essential questions "spiraling" across grade levels. | • Un-prioritized "coverage" of discrete topics, standards and/or benchmarks<br>• Activity-driven teaching instead of a focus on the standards and important ideas of the disciplines<br>• Treating the textbook as a syllabus rather than a resource to teach to the program and course goals<br>• A disconnected treatment of facts and skills. | • Helping students come to understand the "big ideas" of content<br>• Engaging learners in genuine inquiry by exploring essential questions<br>• Connecting discrete facts and skills around "big ideas" ("conceptual Velcro")<br>• Focusing teaching toward the standards |

| Curriculum Component | Design Standards | Avoids Problem of... | While Providing... |
|---|---|---|---|
| | | | |
| 3. Curriculum Mapping: Program and Course/Grade Level Maps | • Pre-K-12 program maps contain Mission –related goals, overarching understandings & essential questions, and cornerstone assessments.<br>• Companion course/grade-level maps contain content standards, understandings, essential questions, unit titles, key vocabulary, key assessments.<br>• Curriculum "spirals" around overarching understandings and essential questions. | • Individual teachers "doing their own thing"<br>• Unnecessary redundancy in content teaching across grade levels.<br>• Important knowledge and skills "falling through the cracks" | • A coherent Pre-K-12 curricular structure<br>• A curriculum that spirals around "big ideas" and essential questions in the disciplines.<br>• Opportunities for making "natural" (i.e., not forced) cross-disciplinary connections.<br>• Regular assessment points (i.e., cornerstone assessments) for gauging progress and guiding improvement actions |
| 4. Cornerstone Assessment Tasks | • Cornerstone assessment tasks are systematically scheduled throughout the curriculum.<br>• Tasks are authentic to the discipline (i.e., involve "doing the subject").<br>• Tasks require thoughtful application, not simple factual knowledge.<br>• Provide evidence of understanding through transfer<br>• Require that students employ habits of mind.<br>• Challenging, yet engaging for students.<br>• Tasks are worth learning and worth "teaching to". | • A focus on assessing low-level knowledge and easily tested skills<br>• Fixation on the format external, standardized tests (i.e., "practice for the test")<br>• The disconnect many students feel between work in school and "real life"<br>• Belief that the goal of schooling is passing tests<br>• Difficulty closing achievement gaps due to lack of student motivation | • Demonstrations of the most valued, Mission-related learning targets<br>• On-going measures of learning for gauging progress and guiding improvement efforts<br>• Evidence of understanding through authentic, transfer performances<br>• A vehicle for motivating students to produce significant work in the discipline<br>• An authentic context for learning more specific facts and skills (i.e., "sideline drills" needed for playing "the game" |

| Curriculum Component | Design Standards | Avoids Problem of... | While Providing... |
|---|---|---|---|
| 5. Common Rubrics (Analytic and Longitudinal) | • Clearly developed rubrics identify important traits and performance standards in every discipline.<br>• Longitudinal rubrics provide a developmental continuum for every discipline. | • Lack of consistent evaluation from teacher to teacher<br>• Teachers' grading based on different factors (e.g., achievement, work habits, progress) in ways that reduce the meaning of grades<br>• Students and parents unclear how work will be judged<br>• No basis for judging learners' progress in a consistent manner<br>• Lack of clarity about what to do next to support achievement growth | • Descriptions of the important dimensions in products or performances<br>• Specification of student performance for different levels of understanding, proficiency, or work quality<br>• A basis for more consistent evaluation from teacher to teacher<br>• A basis for more meaningful "standards-based" grading and reporting<br>• Students with specific performance targets and guides for assessing their own work<br>• Performance benchmarks for judging learners' progress more consistently<br>• A basis for assessing current performance levels and targeting "next steps" |
| 6. Anchors (student work samples) | • Anchors (student work samples) are available to illustrate score points on the rubrics for all cornerstone assessment tasks.<br>• "Exemplars" (top level performances) are identified for all cornerstone assessment tasks. | • Lack of clarity about evaluative criteria and performance standards<br>• Inconsistent teacher evaluation of student products and performances<br>• Students and parents not understanding what "good work" looks like<br>• Students unable to self- assess their performance | • Models to assist teachers in understanding and consistently applying scoring criteria when evaluating student performance<br>• Teacher with student examples for instructional use<br>• Students with clear targets and examples of excellent performance to motivate and guide their efforts<br>• Models to help students better understand and apply criteria when evaluating their own work |

| Curriculum Component | Design Standards | Avoids Problem of... | While Providing... |
|---|---|---|---|
| 7. Enabling learning activities, strategies and resources | • Research-based instructional practices are tied specifically to the content learning goals.<br>• Recommended curriculum resources are identified.<br>• Proven learning resources (e.g., texts, websites, process posters) are offered to support the teaching and learning of specific content learning goals. | • Providing long lists of "stuff" to be covered.<br>• Using existing resources, "favorite" activities and strategies without evaluating whether or not they are effective<br>• Rigid "pacing guides", insensitive to judgment of teachers in addressing the varied needs of the learners<br>• | • Research-based strategies, resources, and activities most likely to support effective teaching and student learning<br>• Intelligent tools to support teachers and learners (e.g., reading strategies bookmark, poster of problem – solving heuristics) |
| 8. Diagnostic (Pre) and Formative Assessments | • Diagnostic and formative assessments are included for key understandings, knowledge, and skills identified at the course and unit levels.<br>• Results from diagnostic and formative assessments inform instructional practice and guide needed differentiation. | • Teachers beginning to teach without knowing what the students already know and can do<br>• Teaching content irrespective of student interests or preferred learning styles<br>• Teachers moving on irrespective of results or need to re-teach<br>• Failure to recognize persistent misconceptions that students harbor<br>• "Teach, test, hope for the best." | • A basis for determining students' prior knowledge (readiness) and revealing existing misconceptions<br>• The information needed to plan needed differentiated instruction based on readiness, learning profiles and interests<br>• On-going assessment information to guide instruction both for individual learners and for the overall program |

| Curriculum Component | Design Standards | Avoids Problem of... | While Providing... |
|---|---|---|---|
| 9. Differentiation Suggestions | • Specific directions provided for tailoring instructions for students based on the given learning goal and their readiness, interests, and learning profiles.<br>• Provides resources (e.g., texts of varied reading levels) and strategies (e.g., tiered lessons) for responding to diverse needs of students. | • "one size fits " all teaching: i.e., doing the same activity with all learners, irrespective of differences in students' readiness, learning profile and interests.<br>• Students having no choices of learning process or product<br>• Students" strengths and interests rarely addressed | • Specific ideas for tailoring instruction for students based on the given learning goal and the readiness level, interests, and learning profiles<br>• Resources (e.g., texts of varied reading levels) and strategies (e.g., tiered lessons) for responding to the diverse needs of learners |
| 10. Troubleshooting Guide | • Predictable learning "rough spots" (common mistakes, misconceptions, and misunderstandings) are identified for each discipline.<br>• Suggested diagnoses, possible causes and suggested responses are provided. | • Teachers do not identify predictable rough spots (common mistakes, misconceptions, and misunderstandings) in their teaching<br>• Students' misunderstandings and errors not revealed until the summative assessment (if at all)<br>• Novice teachers must "reinvent the wheel" and spend years coming to understand what the veterans already know | • Identification of predictable rough spots (common mistakes, misconceptions, and misunderstandings) for specific topics and skill areas of subject areas<br>• A basis for anticipating likely misunderstandings and student errors and focusing instruction to address these problems<br>• An assistance for novice teachers based on the experience of veterans<br>• A starting point for grade-level and department staff conversations about the "right teaching moves" to ameliorate the areas of difficulty for the learners<br>• An expandable database on teaching and learning |

Adapted from

Wiggins, G., & McTighe, J. (2007). *Schooling by design.* Alexandria, VA: Association for Supervision and Curriculum Development.

# Learning principles

**Principles of learning – *working document* 7-21-14**

The following table articulates how the proposed vision and strategies are informed by teaching and learning principles grounded in Self-Determination Theory (SDT) with respect to motivation, combined with assumptions about learning and knowledge that are consistent with socio-cultural and constructivist theories.

| Tenets of SDT | Learning principles |
|---|---|
| Autonomy supportiveness. | 1. Successful learning requires **metacognition**: learning how to reflect, self-assess, and use feedback to self adjust. These metacognitive processes can (and should) be taught explicitly. (Wiggins & McTighe; Bransford) |
| | 2. Learning is most effective when **differences** in learners' prior knowledge, interests and strengths are accommodated (Wiggins & McTighe). |
| Relatedness to self and others. | 3. Building on individual students' **prior knowledge** and experiences (Bransford) |
| | 4. Engaging students in **authentic inquiry** (Bransford) |
| | 5. Developing a classroom-based **community of learners** (Bransford) |
| | 6. **Linking instruction to core concepts** in order to focus on and nurture connection-making (Bransford) |
| | 7. There must be regular opportunities to see the **value** of what we are asked to learn, **how it relates** to past learning and how it will relate to future learning (Wiggins & McTighe). |
| | 8. As a model learning community, a school appropriately requires learning from every member of its community, since **continual learning** is vital for institutional as well as personal success (Wiggins & McTighe). |
| | 9. Learning is **social**. |
| Competency in task orientation (optimal challenge) and belief in own ability. | 10. Supporting their **metacognitive** practices; |
| | 11. Utilizing **authentic assessments** as experiences to **individualize and diversify** instruction (Bransford) |

| | |
|---|---|
| | 12. Developing accurate understandings of the **nature of the discipline** (Bransford) |
| | 13. Learning and the planning of teaching includes consideration of learners' **zone of proximal development** (Vygotsky) |
| | 14. **The goal of all learning is fluent and flexible transfer** – powerful use of knowledge, in a variety of contexts (Wiggins & McTighe) |
| | 15. Greater learning depends upon the right blend of **challenge and comfort** – knowing that success is attainable, and realizing that persistent effort will pay off (Wiggins & McTighe) |
| | 16. Learners need **multiple opportunities** to practice in risk-free environments, to receive regular and specific **feedback** related to progress against standards, and timely opportunities to use the feedback to re-do and improve (Wiggins & McTighe). |
| | 17. All learning-related work in schools should be **judged against standards** related to learning goals (for both students and adults) and reflecting how people learn (Wiggins & McTighe). |
| | 18. **All learners are capable** of excellent work, if the right **conditions for learning** are established (Wiggins & McTighe). |

Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). (2000). *How people learn: Brain, mind, experience, and school.* Washington, DC: National Academies Press.

McTighe, J., & Wiggins, G. (2007). *Schooling by design: Mission, action, and achievement.* Alexandria, VA: ASCD.

Ryan, R. & & Deci, E. (2000) Self determination theory and the facilitation of intrinsic motivation, social development and well-being. *American Psychologist,* 55(1) 58-78.

# Engagement

# Levels of Engagement

## AUTHENTIC ENGAGEMENT:

I feel like... I know I have to do this, but I see the value of doing it and am enjoying it.
The teacher... might have to answer my questions, but nothing else!
I'm doing this because... it's interesting to me and I want to see how it turns out.

## RITUAL ENGAGEMENT:

I feel like... parts of this are interesting, but not the whole activity the entire time.
The teacher... might have to keep me going. I may ask:
"How much does this count in my grade?"
"Is this going to be on the test?"
I'm doing this not because... the work itself is interesting, but because
I want to please the teacher...
My parents would want me to be doing my work...
I need this class for graduation...
Colleges want to see that I've taken this class successfully...
I want a strong GPA...

## PASSIVE COMPLIANCE:

I feel like...I'll do this but I can't wait until it's over....I'm just "going through the motions".
The teacher... really needs to keep me going. I may ask:
"Am I done yet?"
"How many pages does need to be?"
I'm doing this because... if I don't, I'll get in trouble, and I don't really want that.

## RETREATISM:

I feel like... sleeping and staying out of the way; maybe they won't notice.
The teacher... keeps trying to get me to get started.
I'm... *not* doing this.

## REBELLION:

I feel like... doing anything *but* this!
The teacher... has to keep dealing with me because I'm doing something else (doodling, talking, distracting others)
I'm.... doing what *I want to do*.

# Characteristics of Engaging Student Work

1. **Products and Performances.** The work (activity) is product-focused.
   - Is it linked to a product, performance or exhibition?
   - Do students understand the connection between product and learning?
   - Does the product have value to the students?

2. **Criteria for Success.** There are clear and compelling product standards.
   - Are the standards clearly understood?
   - Do the concrete examples, prototypes, and/or rubrics depict what the final product should look like?
   - Do the students see that it's important to have their product meet the standards?

3. **Freedom from Fear.** Student work can fall short of standards without suffering adverse consequences.
   - Is the feedback about the quality continuous (not just when graded?)
   - Aside from the teacher, do those who provide feedback retain a positive affect among their peers?
   - When products do not meet standards, are students provided opportunities to try again without being penalized for their first attempts?
   - Are there a reasonable number of opportunities provided to succeed?

4. **Collaboration.** The work is so designed that collaboration with others is encouraged and supported.
   - Do the tasks encourage collaboration between student & student, and student & adult?
   - Are the products or performances sufficiently complex to require cooperative action?
   - When some of the tasks require independent work, is the result of this work linked to work of the cooperative group?

5. **Affirmation.** Students get affirmation for their work or performances from outside audiences.
   - Do significant persons to the student, other than the teacher, get a chance to inspect, comment on and acknowledge the work or performance?

6. **Novelty & Variety**. The work is structured so it has novelty or variety.
   - Does the work require new or varied means to complete it?
   - Are the products or performances varied in kind, complexity and length of time to complete?
   - Does the work require learning new skills or using old skills in unique ways? (i.e. different mediums, approaches, styles of presentation and modes of analysis).
   - Is the knowledge and skills the students use in the process take into account a variety of formats and a variety of means?
   - Is the learning competitive or game-like or otherwise fun?

7. **Choice.** The students have a choice with regard to the work, but not the learning.
   - Are limited choices provided with regard to the product or performance selection and means to produce them? (sequence, time, order)
   - When time available for the work and the sequence for the work is limited or controlled, are product or performance choices available to the student?

8. **Authenticity.** Student work and the tasks employed in the work have a sense of reality or authenticity.
   - Do the students see the products or performances as 'real life'?
   - Do the students believe that their products or performances have meaningful consequences or significance for them?
   - Are the conditions in which the work is done similar to that in the 'real' world?

9. **Organization of Knowledge**. The content of the work is organized so that it focuses on product and problems, and is integrated as opposed to segmented.
   - Is the content organized in ways that make it accessible and inviting to students?
   - Is the content students are expected to master arranged so that students see connections among the disciplines and within the discipline?
   - Are there timely opportunities for students to learn skills that will enable them to access information and knowledge?
   - Are students given explicit instruction in use of relevant tools or skills, like the skill of examining the logical structure of arguments or skill in distinguishing fact from opinion?
   - Could you make a graphic organizer of the course content?
   - Is the progression of content logical and sequential?
   - Are there a defined number of items per unit and are they subordinated clearly and consistently?

10. **Rich and Meaningful Content**. The content of the learning and work is rich and significant.
    - Are the media students use -- books, artifacts, electronic materials, etc. -- rich and culturally relevant?
    - When content is presented, is the content consistent with generally agreed upon understandings and local expectations?
    - Is the content of the work aligned to the student's maturity level, experience, and background?
    - Is the content of the work packaged and presented in ways that optimize its attractiveness to students?
    - Is the content inherently beautiful, useful or valued?
    - Is the content controversial, relevant or provocative?

Phillip Schlechty (1998) *Inventing Better Schools*

# Student Agency

# Learner-centered principles

Look Like:

- Learners working collaboratively in a respectful and meaningful manner
- Learners using effective communication to create, share, and build upon ideas
- Learners taking responsibility for their own learning by setting goals and monitoring progress
- Learners making relevant connections between what they are learning and their own lives
- Learners using critical thinking skills to develop and refine their understandings
- Learners having some autonomy and choice
- Learners reflecting on their work and the work of others
- Learners using technology as a tool for learning and communicating
- Learners developing their own questions to guide their learning
- Learners producing meaningful work that demonstrates learning
- Learners persevering and using a variety of strategies to effectively solve problems
- Learners energized by engaging learning experiences

*Borrowed from the Churchville-Chili Central School District*

**http://nickrate.com/2013/06/04/student-agency/**

## So what is student agency? Some quick definitions:

Russell Burt:

*Agency – the power to act – informed/empowered/enabled learners*

Mark Osbourne refers to the Quality Teaching for Diverse Students in Schooling: Best Evidence Synthesis Iteration (BES):

*In summary, sustained higher achievement is possible when teachers use pedagogical approaches that enable* ***students to take charge of their own learning.*** *Such approaches do not leave the students 'to discover' in an unstructured environment. Rather, they are highly structured in supporting student agency and sustained and thoughtful engagement. For example, they foster students' abilities to d****efine their own learning goals, ask questions, anticipate the structure of curriculum experiences, use metacognitive strategies when engaging with curriculum, and self-monitor****. Pedagogies that* ***emphasise, embed and enable metacognitive strategy-use*** *throughout curriculum engagement for class groupings, are associated with much higher achievement and enable marked improvements for low achievers.*

Raikes Foundation:

*Student agency is a* ***cluster of academic mindsets*** *and learning strategies that have been demonstrated to advance learning and achievement. Academic mindsets are more evident in students who feel a sense of belonging in a certain subject, class or school; believe that they have the capacity to learn, and see value in their participation. Learning strategies include study skills, meta-cognition and goal-setting, competencies that help individuals persist when learning becomes challenging.*

Values Centered Schools:

*Student agency refers to* ***empowering students*** *through curriculum approaches that; engage them, are respectful of and seek their opinions, give them opportunities to feel connected to school life, promote* ***positive and caring relationships*** *between all members of the school community, promote wellbeing and focus on the whole student,* ***relate to real-life experiences****, are safe and supportive.*

These definitions illustrate to me that agency is about student learning ***and*** teacher teaching. It is about the teacher providing the right environment, support and approaches to learning that enable learners to develop the skills and attitudes for agency to occur, and about the student being engaged in, and empowered by assuming responsibility of their learning through reflection, goal setting and a range of other self-monitoring behaviours.

**Some of the key words that describe student agency for me are therefore; enabling, empowering, self-monitoring, goals, feedback, meta-cognition, active, responsive, self-directed and meaningful.**

A further look at some student agency research unpacked the following Approaches to Learning Model. You can clearly see the relationship between the approaches and agency. These are further supported by additional definitions of student agency:

- *the satisfying power to take meaningful action and see the results of our decisions and choices*
  *since meaning-based tasks fail to proscribe the use of particular structures, learners have to take an active role in sorting out exactly what they are learning*

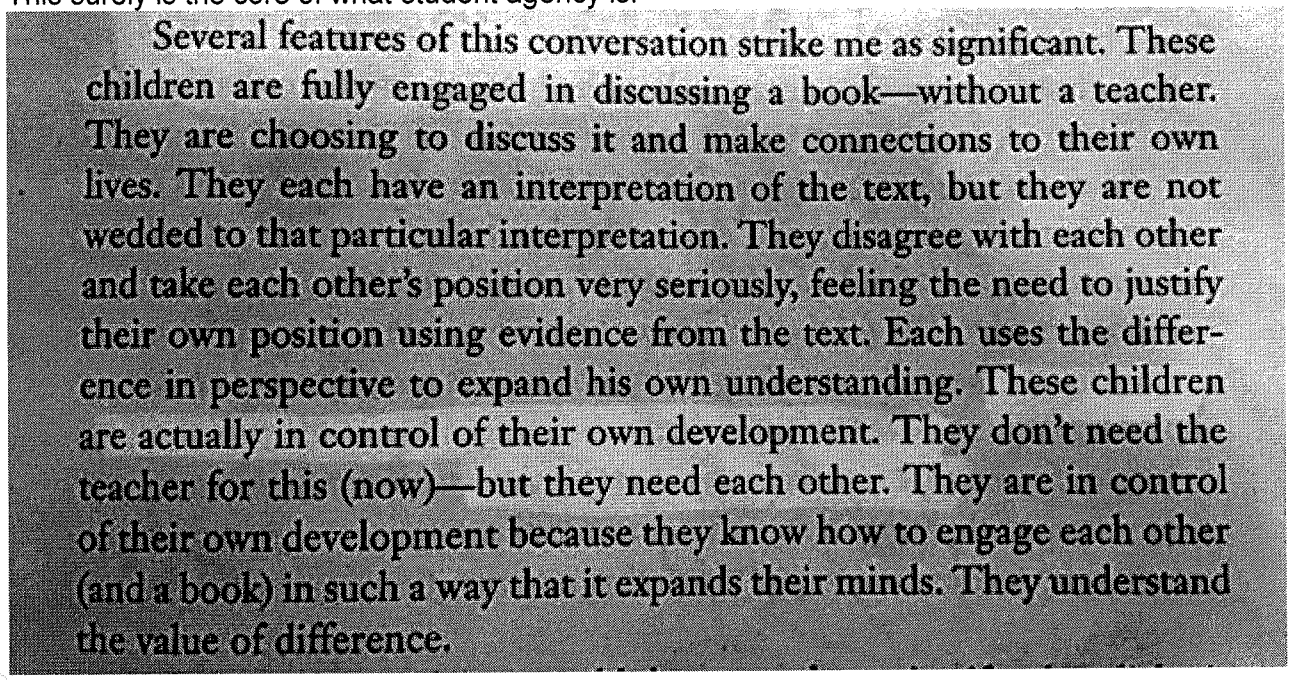
Table 2
Entwistle's Approaches to Learning Model (as cited in Thorpe, 2002)

| Deep approach (transforming) | Strategic approach (organizing) | Surface approach (reproducing) |
|---|---|---|
| Intention: to understand material for oneself | Intention: to excel on assessed work | Intention: to cope with content and tasks set |
| Showing an active interest in course content | Alertness to assessment requirements and criteria | Studying without reflecting on purpose or strategy |
| Relating ideas to previous knowledge and experience | Gearing work to perceived preferences of lecturers | Seeing the course as unrelated bits of knowledge |
| Looking for patterns and underlying principles | Putting consistent effort into studying | Difficulty in making sense of ideas presented |
| Adopting a cautious, critical stance | Ensuring right conditions and materials for studying | Memorizing facts and procedures routinely |
| Checking evidence and re-lating conclusions | Managing time and effort to maximize grades | Feeling undue pressure and worry about work |

*Student Agency and Language-Learning Processes and Outcomes in International Online Environments* Olga Basharina University of New Mexico

What strikes me about this model though is that it does not take in the role of the teacher in to the equation (or maybe it does... I would need to read the full explanation from Entwistle himself). As I have stated above student agency isn't just the responsibility of the student, the teacher and school must provide the conditions and support/model/teach in a way that provides all students with the ability to learn and demonstrate agency.

So bringing it back to where this post started, with our writing PLD. Our facilitator Rita Plamer has introduced us to Ralph Fletcher's work and she dug out this reference to agency from the text A Writer's Notebook – Unlocking the Writer Within You. Being in control of their own development, i.e. their own learning – great! This surely is the core of what student agency is.


Several features of this conversation strike me as significant. These children are fully engaged in discussing a book—without a teacher. They are choosing to discuss it and make connections to their own lives. They each have an interpretation of the text, but they are not wedded to that particular interpretation. They disagree with each other and take each other's position very seriously, feeling the need to justify their own position using evidence from the text. Each uses the difference in perspective to expand his own understanding. These children are actually in control of their own development. They don't need the teacher for this (now)—but they need each other. They are in control of their own development because they know how to engage each other (and a book) in such a way that it expands their minds. They understand the value of difference.

http://1to1schools.net/2013/03/student-agency/

In my work with the Next Generation Leadership Academy, we focus on six "critical attributes" which were identified by the Chief Council of State School Officers. Student Agency is one of those attributes, and it is defined as follows:

> *The expectation that **students will develop to direct and own their learning and assume responsibility for themselves and their communities**. Student agency is both a means to college and career readiness and a competency that is part of being a college and career ready individual.*

**Student choice** and **voice** are certainly part of student agency, but this definition includes **student responsibility** as a key component. When thinking about student agency, the amount of student ownership could certainly vary widely. I've categorized a couple of possible examples of student agency from mild to wild. The wild ideas are certainly a bit more challenging to implement!

Mild:

- Let students take responsibility for how they will share their learning with you. Create a rubric that clearly identifies learning goals and guidelines. Students can then choose the medium to demonstrate their knowledge. That might be a report, blog, video, podcast, prezi, song, or presentation. It could also be a medium unfamiliar to you. The success of this project will be dependent on your rubric!
- Have students create a plan for creating a positive digital presence for your school. Allow students to implement that plan!

Wild:

- Share end of unit objectives with students. Allow students to create their own learning plan that must include a demonstration showing that they have mastered the content. The plan should also include the steps students will use to gain that knowledge. This would certainly be easier in some courses than others!
- Give students freedom each week to explore a topic of their choosing. I recently finished Daniel Pink's book *Drive* which highlighted the successes many companies have had with allowing employees to explore a topic of their own choosing.

Nick Sauers

# Culturally relevant and responsive pedagogy

# PREPARING TEACHERS FOR CULTURALLY RELEVANT PEDAGOGY

Culture has been defined as "The system of values, beliefs, and ways of knowing that guide communities of people in their daily lives" (Trumbull, 2005, p. 35). Effective teacher preparation addresses the need for teachers to acknowledge students' diversity and incorporate their pluralistic backgrounds and experiences into the learning experiences and classroom environment. In "culturally relevant pedagogy" (Ladson-Billings, 2001), "culturally responsive teaching" (Gay, 2000) (and other similar terms) teachers "develop the knowledge, skills, and predispositions to teach children from diverse racial, ethnic, language, and social class backgrounds" (Weinstein, Curran, & Tomlinson-Clarke, 2003, p. 270). Kirk-land (2003) commented that "good multicultural teaching honors our diverse cultural and ethnic experiences, contributions and identities" (p. 131) and emphasized that teachers need to "understand the experiences and perspectives [students] bring to educational settings and be responsive to the cultures of different groups in designing curriculum, learning activities, classroom climates, instructional materials and techniques, and assessment procedures" (p. 134).

According to Hackett, teachers need to develop a "strong cultural identity [so as to be] responsible for teaching the whole child by teaching values, skills, knowledge for school success and participation in society, linking classroom teaching to out-of-school personal experiences and community situations" (Hackett, 2003, p. 329). Ambrosio emphasizes the importance of multiculturalism for the teacher:

> Teaching is learning—a process of slowly integrating knowledge into practice.... The most important aspect of teaching is developing the mental habit of reflecting on your instructional practice and of altering your practice according to what you discover about how students learn best. Knowledge of multicultural theory and practice will give you the reflective space, the necessary reservoir of cultural insight, to intelligently address pedagogical issues as they arise in your everyday practice. (Ambrosio, 2003, p. 37)

Gay (2006) echoed one recurring response to the need to ensure high-quality teacher preparation:

> U.S. society is becoming increasingly diverse, and that diversity is reflected in its classrooms. Creating a respectful, productive classroom environment is always a challenge; this challenge is even greater when students and teachers come from different cultural backgrounds, or when students differ in terms of race, ethnicity, socioeconomic status, cultural and linguistic background, sexual orientation, ableness, and academic aptitude. Unless teachers have the knowledge, skills, and disposition to effectively guide diverse groups of children, they are likely to face classes characterized by disrespect and alienation, name-calling and bullying, disorder and chaos. (pp. 365–366)

Moreover, Gay advised that "teachers must be multicultural themselves before they can effectively and authentically teach students to be multicultural" (Gay, 2003, p. 4) and proposed that "culturally responsive teachers ... validate, facilitate, liberate and empower ethnically diverse students by simultaneously cultivating their cultural integrity, individual abilities, and academic success" (Gay, 2000, pp. 43–44).

Culturally relevant pedagogy aims to ensure that educators acknowledge and honor the diverse viewpoints of their student population and refrain from promoting homogeneous perspectives as universal beliefs. Glanzer (2008) referenced Hunter (2000) in that "the unspoken imperative of all moral education is to teach only those virtues, principles, and other moral teachings about which there is no disagreement in American society" (p. 525). Glanzer proposed that "schools should show fairness to diverse visions of the good life and not merely replace them with neutered and safe substitutes" (p. 526). Dingus (2003) further emphasized the importance of this perspective: "No student should have to sacrifice cultural heritage, ethnic identity, and social networks in order to obtain an education" (p. 99).

# CHARACTERISTICS OF A CULTURALLY RESPONSIVE CLASSROOM

For more than five decades, teachers have developed strategies to comply with the responsibility to accommodate diverse students in an inclusive classroom; these challenges are compounded by the increasing diversity among the student population. Although teachers must be competent in the subject area they are assigned to teach ("Highly qualified teachers," 2006), **the main focus in teaching has switched from the "What"—that is, content in the curriculum—to the "Who":- who is the learner in the classroom.** Teachers are responsible for teaching their students and for ensuring they all learn. It is critical that **educators use their knowledge of students' background and incorporate what they know about these learners into quality learning experiences**. Culturally responsive teaching involves incorporating into learning experiences components of what is known about students' knowledge of their cultures, their prior experiences both in their countries of origin and their current living situations, as well as the learning styles of diverse students, to make learning more appropriate and effective for them (Gay, 2000). "Culture is central to learning. It plays a role not only in communicating and receiving information, but also in shaping the thinking process of groups and individuals. A pedagogy that acknowledges, responds to, and celebrates fundamental cultures offers full, equitable access to education for students from all cultures" ("Culturally Responsive Teaching," 1994).

Ambrosio (2003) referred to Freire's (1970) premise that "Rather than seeing students as empty vessels, to be filled with the expert knowledge of teachers ... **students must make their own meanings; they must be producers of knowledge themselves**" (p. 31). Moreover, he advised that teachers consider "students as creators rather than consumers of knowledge, as makers of meaning rather than passive recipients of socially sanctioned truths" (p.34). Ambrosio advocated a **"pedagogy that uses the personal knowledge and experiences of students to reflect critically on issues presented from a variety of perspectives**" (p. 34), advising that teachers should commit themselves to **developing classrooms based on a "cultural democracy**, to creating learning experiences and opportunities that allow students from diverse cultural groups to see themselves in ... curriculum, instructional practices, and classroom climate" (p. 34). Pratt (2008) supported a student-centered curriculum, which "appreciates diverse abilities and interests and adapting teaching to allow for these differences" (p. 517). Students succeed when academic tasks include themes representative of their own culture (Boykin, Tyler, & Miller, 2005). Ironically, practices that give students choices about what they learn and how they learn are misaligned with standards-based curriculum and accountability through testing.

Culturally relevant pedagogy is a component in the foundation of competencies effective teachers require. Ladson-Billings (Summer, 1995) commented about this concept:

> But that's just good teaching! Instead of some "magic bullet" or intricate formula and steps for instruction, some members of my audience are shocked to hear what seems to them like some routine teaching strategies that are a part of good teaching. (p. 159)

These "routine strategies for good teaching" are the criteria for effective teaching and learning. It is with this repertoire of theories, skills, and practices that effective teachers are able to create environments conducive to achieving the goal of education. That goal is to facilitate the development of intelligent, life-long learners who possess the strategies and metacognitive processes to make

meaningful connections with their knowledge basis and transfer their skills to (and beyond) the challenges they encounter in their daily life. Teachers are obligated to "prepare students to become effective and critical participants in the world" (Nieto, 1999, p. 143). Effective educators are cognizant of the components necessary for learning to occur and are able to delve into their "toolbox" of theories and practices, strategies and perceptions, to ensure that all of their students will succeed. This is the more critical as the information and skills students learn will often be outdated by the time they exit the school environment.

Gay (2003) acknowledged, "much is said about the necessity and value of variety in teaching styles or using multiple means to achieve common learning outcomes" (p.2). When teachers plan for successful learning, they make a concerted effort to deliberately plan for classroom experiences in which all learners can be reached at multiple points throughout the learning experiences. Teachers who plan deliberately for an environment conducive to learning for all students ensure differentiation by incorporating various learning styles, multiple intelligences, cooperative learning, and "the diversity of learning styles, histories, cultures, and experiences that ethnically different students bring to the classroom" (p. 2).

Ambrosio (2003) emphasized that "multicultural education places a high value on critical thinking, on the **personal truth making that enables students to challenge the moral and intellectual authority of the dominant culture"** (p. 36).

**Cooperative Learning.** When a classroom incorporates the tenets of Cooperative Learning, the environment promotes maximal learning (Kagan, 2001). Ladson-Billings' (1994) notion of culturally relevant classrooms provided Craviotto and Heras (1999) with the concept that when a classroom is designed around culturally relevant principles, there is significant interaction between students as well as between students and the teacher. They explained that, "Classroom dialogue is a fundamental aspect of classroom discourse.... [and the] classrooms are framed as an inviting space for exploration, learning, and dialogue among peers, students, and adults" (np). Rothstein-Fisch and Trumbull (2008) referenced Marzano (2003) to promote classrooms where expectations include actions based on mutual respect. They support their premise with Slavin's (2006) endorsement that an advantage of cooperative learning situations reinforces students' responsibility for their own learning.

**Classroom Management from a Cultural Perspective.** The competencies for effective teaching include creating an environment conducive to learning. Effective classroom techniques are critical for each and every student to receive the learning experiences to which they are entitled (Weinstein et al., 2003). Culturally responsive pedagogy helps teachers achieve the goal of culturally responsive classroom management (CRCM) when they develop their management plan with an awareness of the diversity in their classrooms. Weinstein and colleagues (2003) outlined three premises by which to achieve the goal of CRCM:

1. *Recognize that we are all cultural beings, with our own beliefs, biases, and assumptions about human behavior.* At the same time, as it is incumbent that the educator incorporate the values "implicit in the western, White, middle-class orientation of U.S. schools, such as the emphasis on individual achievement, independence, and efficiency... By bringing

cultural biases to a conscious level, we are less likely to misinterpret the behaviors of our culturally different students and treat them inequitably;

2. *Acknowledge the cultural, racial, ethnic, and class differences that exist among people.* People must acquire "cultural content knowledge." They must learn, for example, about their students' family backgrounds, their previous educational experiences, their culture's norms for interpersonal relationships, their parents' expectations for discipline, and the ways their cultures treat time and space, and use acquired cultural knowledge as a way of demonstrating an openness and willingness to learn about the aspects of culture that are important to students and their families;
3. *Understand the ways that schools reflect and perpetuate discriminatory practices of the larger society.* This involves an understanding of how differences in race, social class, gender, language background, and sexual orientation are linked to power (p. 270).

Weinstein and colleagues proposed that, "Culturally responsive classroom managers work to create a sense of community. This means anticipating the cultural conflicts that are likely to arise and promoting positive relationships among students" (p. 273).

Rothstein-Fisch and Trumbull (2008) emphasized that teachers be trained in techniques of classroom management from a cultural perspective in that "cultural values and beliefs are at the core of all classroom organization and management decisions" (p.xiii). They acknowledged the continuing concern that "School culture is relatively consistent across the United States and reflects the individualistic values of the dominant, European American culture" (p.xiii).

**Cultivating Caring, Respectful Relationships.** The ultimate goal of an effective teacher preparation program is to develop and hone the skills educators require to create learning environments that acknowledge, respect and are representative of the social world of all students (Nod-dings,1992). "When teachers and students come from different cultural backgrounds, planned efforts to cross social borders and develop caring, respectful relationships are essential" (Weinstein et al., 2003, p. 272). When teachers create an environment which is based on caring and concern, and in which each student is valued, the result is that students become more motivated and learn more (Stipek, 2002). Pratt (2008) identified "caring" as a central dimension of effective teaching. He advised:

> Sometimes it is important to put aside the research journals, political commentaries, and popular news about the state of education and stop long enough to listen to the voice of a 9-year-old.... You can learn a lot about classrooms just by listening to the kids who inhabit them. (p. 515)

**Teacher Reflection as a Standard of Effective Teaching.** In the standards for effective teaching, reflective practice is a criterion for all teachers—pre-service, novice, and veteran. Teachers' ability to reflect on student achievement is a critical component in teacher preparation as well as in continuing professional development. Teachers who reflect on their own teaching ensure students are successful in their learning (Hoffman-Kipp, 2003; Ladson-Billings, 1995, 1999). Howard (2003) recommended teacher reflection as a means of incorporating issues of equity and social justice into teaching thinking and practice.

From http://www.education.com/reference/article/culturally-relevant-pedagogy/#A

# Preparation for participation in our democracy

## *A Crucible Moment: College Learning and Democracy's Future*

*A Crucible Moment* was written with guidance from hundreds of educators, convened in formal and informal roundtables, who had already made a strong commitment to advancing civic learning and engagement. As the advisors who framed *A Crucible Moment* acknowledge, its recommendations could only be made because educators from all sectors have been testing new designs for campus and community partnerships, for public scholarship, for community-based learning and problem solving, and for pedagogies that teach students to work and learn with people different from themselves. *A Crucible Moment* pays warm and well-deserved tribute to these civic trailblazers.

The trailblazers themselves were quick to say, however, that we now need to take civic inquiry to the next level. Recognizing the value of both service and service learning, they nonetheless want to engage students in what the report describes as "civic problem solving." Students should have opportunities to work with community partners to tackle and help ameliorate the myriad public problems we face nationally and globally.

*A Crucible Moment* calls on educators at all levels to make civic learning and engagement with real-world problems a core component of all students' education, both in the schools and in all sectors of postsecondary education. Civic learning should be expected, not elective—pervasive rather than marginal.

The document provides a framework to guide students' acquisition of civic knowledge, capacities, and experience. Its key idea is that schools and colleges need to cooperate in developing pathways for civic learning that combine rich knowledge of democratic principles and practices with hands-on, face-to-face work in our communities on problems that affect our future, such as poverty, literacy, nutrition, health, and the environment.

***A Crucible Moment* A Framework for Twenty-First-Century Civic Learning and Democratic Engagement**

| **Knowledge** | **Skills** | **Collective Action** |
|---|---|---|
| • Familiarity with key democratic texts and universal democratic principles, and with selected debates—in US and other societies—concerning their applications<br>• Historical and sociological understanding of several democratic movements, both in the US and abroad<br>• Understanding one's sources of identity and their influence on one's civic values, assumptions, and responsiblities to a wider public<br>• Knowledge of the diverse cultures, histories, values, and contestations that have | • Critical inquiry, analysis, and reasoning<br>• Quantitative reasoning<br>• Gathering and evaluating multiples sources of evidence<br>• Seeking, engaging, and being informed by multiple perspectives<br>• Written, oral, and multi-media communication<br>• Deliberation and bridge building across differences<br>• Collaborative decision making<br>• Ability to | • Integration of knowledge and examined values to inform actions taken in concert with other people<br>• Moral discernment and behavior<br>• Navigation of political systems and processes, both formal and informal<br>• Public problem solving with diverse partners<br>• Compromise, civililty, and mutual respect |

| | |
|---|---|
| shaped US and other world societies<br>• Exposure to multiple religious traditions and to alternative views about the relation between religion and government<br>• Knowledge of the political systems that frame constitutional democracies and of political levers for influencing change | communicate in multiple languages<br>**Values**<br>• Respect for freedom and human dignity<br>• Empathy<br>• Open-mindedness<br>• Tolerance<br>• Justice<br>• Equality<br>• Ethical integrity<br>• Responsibility to a larger good |

General education is one way to do this, but it is not enough. In perhaps its most pace-setting argument,*A Crucible Moment* argues that college majors, including those that prepare students directly for jobs, need to teach students what it means to take responsibility for the democracy in which we all participate and in which we all have a stake.

So *A Crucible Moment* recommends that "public questions" and "civic inquiry"—what some have called "civic professionalism"—be incorporated into every field of study and major. Those preparing for careers in science, health, engineering, education, business, accounting, and the trades all need practical experience of the kinds of questions with which every field and every professional inevitably wrestles. The report provides specific examples of institutions, such as Worcester Polytechnic Institute in Massachusetts and California State University, Monterey Bay, where this kind of career-related civic learning is already a core dimension of each student's professional development.

In issuing this call to action, those engaged with *A Crucible Moment* launched the American Commonwealth Partnership, spearheaded by Harry Boyte, which is working with many campuses and organizations to foster partnerships between educators and their communities focused on disputed public questions.
In addition, to make civic learning part of the expected educational experience for all students, AAC&U has formed a formal partnership with a dozen other major organizations that are already addressing different aspects of civic inquiry and engagement. This Civic Learning and Democratic Engagement Action Network (CLDE) is led by Caryn McTighe Musil, the senior AAC&U leader who also was the primary author (with myriad advisory editors) of *A Crucible Moment.*

The CLDE effort complements and builds on a parallel initiative, the Campaign for the Civic Mission of Schools, that already is gaining traction in school circles and whose leaders contributed to the recommendations in *A Crucible Moment.* The partner organizations are all working to make civic learning pervasive within higher education and to build additional evidence about what works in fostering civic knowledge, engagement, and commitment. The Kettering Foundation has signaled its intention to work directly on *Crucible*'s recommendation that civic learning be incorporated into major programs, including career fields. Musil will be a key figure in this effort as well.

To assist the CLDE, AAC&U is expanding its journal, *Diversity and Democracy,* to feature the most important examples of public-spirited curricula, pedagogy, and ongoing community partnerships that CLDE members can identify. *Diversity and Democracy* will also publish emerging research on what is and is not working in developing students' civic commitments and capacities. Building on the energy already surging through many disparate movements and efforts, the CLDE network wants to create cooperation around a shared direction in order to accelerate the pace of change. This effort is central to AAC&U's next strategic plan.

The schools have the NAEP assessments of civic learning and history—now it's higher education's turn to assess the civic learning of its students. AAC&U and the American Association of State Colleges and Universities (AASCU) are spearheading a task force that will recommend how to do so—and how to make students' hands-on civic problem solving part of that assessment.
Will these efforts to reclaim higher education's civic mission result in far-reaching change? Time will tell. But it is a very promising sign that, in a separate but important development, the Lumina Foundation is now beta-testing a 21st-century framework for college-level learning outcomes, the *Degree Qualifications Profile* (DQP), in which civic learning is one of five domains proposed as necessary to every associate's, bachelor's and master's degree.

Over 125 colleges and universities and half a dozen higher education associations and accrediting agencies are trying out the DQP framework and seeing how well it works for their students and accords with their missions. Early reports indicate that the experimenting campuses by and large see the DQP's emphasis on civic learning as the right step forward.

http://www.changemag.org/Archives/Back%20Issues/2013/January-February%202013/civic-learning-and-engagement-full.html

# Thinking Skills

# Teaching students skills

## We must teach skills as well as content.

Generic Skills are skills vital for success in assessments. For example the skills required to succeed in assignments, essays, exams, coursework, etc. This includes widely used 'study skills' and many 'Key Skills' but also includes subject specific skills such as writing a laboratory report, doing a comprehension exercise, or evaluating a marketing strategy.

These skills are not content, and so often don't find their way on to the Scheme of Work. Yet they need teaching and they need class time! They are more difficult to learn than the content usually. So don't just teach the easy bits (content), and leave the hard stuff (skills) for the students to work out for themselves!

## The best way of teaching skills is to integrate them into your lessons.

A research review by Hattie, Biggs, and Purdie has shown that these skills are best learned by integrating them into the course – teaching them 'up front' only works about half as well. Teaching these skills well can add a grade and a half to student achievement.

- Download Summary of Hattie Biggs and Purdie's review on how to teach study skills
- Download Approaches to generic skills teaching

## Make sure your students believe the can improve their skills.

Hattie Biggs and Purdie found that a very important factor affecting the learning of skills was 'attribution'. Do students attribute their success or failure to factors over which they have no control such as intelligence or talent; or do they attribute success and failure to factors they can control, such as the time and effort they spend learning. Professor Carol Dweck has written a book on this which is sumarised very briefly here.

One of the best ways of getting students to attribute their success to that effort and time spent learning is the use of self and peer assessment, and perhaps spoof assessment. Methods for doing this can be downloaded in a handout called 'formative teaching methods' available on the active learning page.

## Make time to teach Generic Skills

In order to teach a generic skill you need to set students tasks in class that allow them to practice the skill. For example students could plan an essay on some new content they are learning, then they learn the skill of essay planning, but they also become more familiar with the content. You need to teach them the 'how' of the skill: the process; as well as attend to the work they do when practising the skill: the product. Process is particularly important, all skills are processes that can be learned, not genetic or God-given gifts.

## Bridging helps students to 'transfer' their learning of skills

The downloads on this page show strategies that you will need to adapt for your subject and your students. In particular you will need to use 'bridging', see the Learning from Experience chapter in Teaching Today Third

Edition. The Feuerstein handout mentions bridging briefly. Feuerstein's methods, when used to teach students with moderate learning difficulties have typically added 20 or 30 points to their IQ in four years leaving them with an IQ of 100 which is average. His methods use special methods and materials, and you require training to use them. However, some methods anyone can use, such as bridging. Download A handout about Feuerstein and bridging here.

If you are interested in developing your students' creativity or Independent Learning then visit :
the creativity page and the independent learning page

## Meta-cognition helps the learning of skills

The study skills activities below are suitable for tutorials or for teaching subject specific study skills in your class. They come from an excellent book by Graham Gibbs called 'Teaching Students to Learn' Open University Press. The experiential and 'snowball' approach he advocates has many advantages, do try it. Hattie Biggs and Purdie's review found that the study skills programmes that had the most beneficial effect on achievement made use of 'meta-cognition'. This is thinking about your own thinking and learning, and self-regulating your own skills strategies and their improvement. Gibb's book makes use of a brilliant meta-cognition strategy called snowballing. Both the book and this strategy are very highly recommended. Here are two adaptions of his methods to help teach students to write, and for teaching them to read for understanding:

- Gibb's writing skills
- Gibb's reading skills

http://geoffpetty.com/for-teachers/skills/

## Robert Marzano on Teaching Argumentation

(Originally titled "Teaching Argument")

In this *Educational Leadership* column, author/consultant Robert Marzano says the art of argument is having a revival in light of the Common Core ELA and Math Standards, which require students to be able to create, analyze, and critique arguments that support a claim. Marzano says there are four parts of argumentation:

• Claim – A new idea or assertion, for example, *People should not smoke.*

• Grounds – To be valid, a claim must be supported by grounds or evidence, for example, *Many medical organizations recommend that people not smoke to minimize their chances of getting lung cancer.*

• Backing – Additional information that helps establish the validity of the claim, for example, *The American Association for Cancer Research, the American Lung Association, and the National Cancer Institute support this claim.*

• Qualifiers – Exceptions to the argument, for example, *Some cases of lung cancer aren't caused by smoking.*

Marzano says that with younger students, these steps might be expressed slightly differently:

- My new idea is…
- I think this is true because…

- I actually saw...
- But I don't know...

"Teaching Argument" by Robert Marzano in *Educational Leadership*, September 2012 (Vol. 70, #1, p. 80-81), www.ascd.org

## Effective teaching of study skills **Version 1 June '02** Geoff Petty

This handout summarises what research tells us about the effectiveness of study skills teaching, it also compares different strategies and identifies the best. Indeed it identifies a vital aspect of excellent teaching of any kind. It is based on a definitive review of research in this area by Hattie Biggs and Purdie*, who are the international experts on this topic, and indeed experts in learning more generally. They combined decades of research into a 'meta study' (study of studies) to draw their conclusions, so in terms of 'how to do it' it's the best advice we have.

They find that study skills can be taught, that it can add between one and two grades to students' academic performance depending on how it is done, and that it need not take a great deal of time. Very few teachers will already be adopting the best practice described in this study, so there are opportunities here for almost everyone to improve their teaching.

To summarise the findings: for best results, study skills needs to be integrated in with the subject teaching, and taught in an active and reflective manner, using subject specific material and tasks.

## Comparing different approaches

Hattie et al use 'effect sizes' to compare the effectiveness of hundreds of different study skills teaching programmes. In outline, the best way of telling how well a teaching strategy works is to try it out with real teachers and students, and to have a control group. You can then compare learning 'with' and 'without' the strategy being tested. How much more the experimental group learns than the control group is the 'effect size'.

- An effect size of **1.0** is analogous to a **two** grade leap at GCSE
- An effect size of **0.5** is analogous to a **one** grade leap.

There is more on effect sizes at the end of this handout.

**The main findings of the study skills meta-study were:**

- Most study skills teaching has a positive effect, but some works much better than others. The mean effect size of studies was about 0.45. Study skills teaching improved attitude more than it did the students' study skills (0.48). Perhaps it makes students feel less stressed!
- Although other strategies can work well, the best strategy is to teach study skills **in context**. Only exceptionally will students 'transfer' strategies learned in one context, into another. So if an economics teacher teaches essay planning, the students benefit and their essays get at least a grade better, but they need to be taught by their history teacher to transfer these skills to, say, history essay planning which otherwise will not improve!
- It's best to use tasks that are real, embedded, and subject specific. E.g. Teach essay planning while they are writing a real essay for their course; or teach note taking by looking at the notes they have made in a real lesson.
- Its best to integrate study skills teaching into the scheme of work.
- Students must be active while they are learning study skills. Giving notes on how best to study doesn't work.

- Meta-cognition is a notable feature of all the successful (high effect size) studies that they found. Meta-cognition is students thinking about their learning, and self-regulating their own learning. For example, students reflecting about the way they work, and so setting themselves goals for improvement, then evaluating how this went.

### Conventional study skills teaching

Study skills have often been taught as a separate and discrete topic. This is not the best way, but it works pretty well, adding up to a grade to students' performance. Techniques such as skim reading, note taking, essay planning and so on are taught one at a time and independently, without regard to context. This approach works best for younger learners, and not at all well for adults.

### Teach Study skills in context: the relational approach. (Mean Effect size 0.77)

This is the best approach, nearly twice as effective as that described above. It is to integrate study skills teaching into the subject teaching using subject specific material and tasks.

For example essay planning is taught by the subject teacher setting a task of doing an essay that is actually required for the course. The subject teacher explains how to research, plan and write essays, gives students time to practice these skills in class, and ensures students get feedback on how well they have done on each sub-skill. This does not need much extra time

Students learn skills by using them in a realistic, subject-specific context, and in a combined way. So they might use other skills taught before such as note taking, highlighting, mind-mapping etc., all in context. The purpose of the skills are stressed, students are taught not just what to do and how, but also why. The students then reflect on how well they used the skills, what gains they were getting and so on, and then they action plan for improvement. (meta-cognition).

This is also the best way for getting transfer between subjects, and is probably more likely to ensure that the skills do not fade with time. This approach works particularly well for older and more able students, but works best for younger ones too.

## You could use snowballing as part of your relational approach

I have a series of six activities to teach note taking, reading, essay writing etc using this metacognitive approach. It is based on the work of Graham Gibbs who's study skills approach is well researched and exemplary . If you are interested I can send you the materials. It involves using the 'snowball approach'. This is best explained by example. Suppose you were teaching note taking. The snowball approach would be:

1. Students do some note taking
2. In pairs, students look at each other's notes to find 'good' and 'bad' points
3. Pairs combine into fours, and each student explains the good and bad points of their original partner.
4. The teacher hears feedback from each group of four on what is best practice
5. The teacher corrects any misconceptions or bad practice and summarises best practice
6. Students as individuals set themselves action plans for improvement..

**The characteristics of the most effective study skills programmes were:**

- The teacher identifies the study skills required for success in their subject, e.g.

- The students self-assess how effectively they use these study skills, teacher assessment may also be helpful in many cases. The students then work on the study skills they find most difficult. This self-assessment can take place before, during, or after the main instruction on study skills.
- Students learn the skills actively. They actually do it, they don't just hear about how it should be done.
- The different skills such as skim reading, note taking, highlighting, mind-mapping etc are 'orchestrated' to the demands of the particular task and context. They are not just taught and used independently.
- The student takes control and chooses which technique to use when and why, while maintaining a clear sense of purpose. The use of skills is directed towards the subject specific task(s). E.g. writing an essay.
- Students are required to self-monitor, self-assess, and self-regulate their use of these skills, setting themselves targets for experimentation and improvement. This is called 'meta-cognition' and is given a heavy emphasis in this review. The effect sizes of strategies that require meta-cognition are nearly twice as high as those that do not.
- In the very best programmes students are asked to generalise what they have learned about study skills to other aspects of their study. For example "Its always important to keep in mind what the key points are when studying a topic" "You forget if you don't review and it its best to review often for short periods than rarely for long periods" etc.

This is not as time consuming as it sounds. Students can't help but learn the subject specific content while they are learning the study skills. Indeed some study skills activities such as making a summary mindmap are excellent methods for learning the content.

Study skills programmes of only 3 to 8 hours duration were found to be effective. Some FE courses combine study skills and the learning of high order thinking skills required in their subject, and dedicate 20% of the teaching time to this. Small studies have demonstrated remarkable success. See Geoff for his paper called *"How to get a 100% pass rate with 90% grades A to C"*

### Which study skills should we teach?

As mentioned before, you need to identify the study skills and sub-skills crucial for success in your subject. However, 'Attribution' and 'structural aids' are worth including in any study skills programme as they have the largest effect sizes of all study skills topics.

Attribution (Mean effect size 0.96 to 1.42!!)

This involves teaching students to attribute the quality of their work to factors over which they have control such as: effort, study time, and the use of appropriate strategies, and not to attribute the quality of their work to fixed attributes over which they have no control such as talent, ability, prior learning, or IQ. Clearly, if a struggling student attributes their weakness to IQ then they are likely to despair and withdraw effort. If they attribute their weaknesses to lack of effort, then they may actually do something about it!

The 1.42 effect size is enormous, and is for within subject specific programmes, the 0.96 is for 'transfer' between programmes.

See my handout on Dweck for strategies and more detail. Or read the Dweck action research proposal at http://geoffpetty.moonfruit.com on the Action Research page.

Dweck found that about half of all students at all academic levels believe their performance is determined largely by fixed attributes such as IQ. Consequently they withdraw effort instead of increasing it when they encounter difficulties.

Attribution can be taught very indirectly. For example if a teacher asks students to reflect on their performance and to set themselves goals for improvement, perhaps with an assessment profroma, they send a 'hidden message' --- that improvement is within the students capability, and that performance is not simply due to talent. However, you can teach it more directly too.

Structural Aids: (Mean effect size 0.58)

These are strategies that show the structure of what is being learned. It involves interacting with content to develop ideas on its meaning, for example extracting the key points from the content being studied. Such strategies include: 'Concept mapping' (or mind mapping, spider diagrams etc); 'advanced organisers' where students are told in advance what they will learn in a lesson or unit; note taking skills; summary writing etc. Teaching students to work up the Biggs SOLO heirarchy may also help. See separate handout on this. Also see my 'Analysis' handout.

Effect sizes are additive, so if students learned 'attribution' and 'structural aids' effectively this would add three grades to each student's academic performance! In practice it is hard to implement strategies as rigorously as on educational research programmes. However, the very large effect sizes for these strategies show that there is plenty of opportunity to improve student learning.

Memory Aids such as Mnemonics (Mean effect size 1.09)

For example Richard of York Gained Battle In Vain to remember the colours of the rainbow: Red Orange etc. The high effect size is partly due to the limited measure of success (rote recall).

# A Coda on Conventional Study Skills Teaching (Mean effect size 0.45)

This is common but is not the best way. It involves teaching directively, a range of skills such as underlining, skimming, and essay planning etc., but not using all these skills together, or learning how to choose the skill that is most appropriate on a given task. Students are not taught how to integrate their use of the different skills or techniques. They are not taught to work with a sense of purpose choosing the most appropriate skill depending on context.

As you can see this strategy doesn't work as well as the relational approach described earlier. However, it is 'considerably better than nothing' adding nearly a grade to students' academic performance.

Some of the weaknesses of this approach may be overcome if students are required to use the skills and techniques they are being taught within their subject learning, and reflect on their experience of using them. For example, a tutor could do 'note taking' with students, and ask them to try the technique in a forthcoming lecture. They could then offer opportunities for students to review their note taking experiences at the next tutorial and set themselves targets and so on. This would considerably improve on the effect size of 0.45 which is already above average for educational research, showing that study skills teaching works, and is important.

**References:**

Hattie Biggs and Purdie (1996). *"Effects of Learning Skills Interventions on Student Learning: A Meta Analysis."* Review of Educational Research Summer 1996 Vol. 66, No 2, pp 99-136

"Teaching Students to Learn" Graham Gibbs Published by Open University Press in 1981.

Appendix D.5: Teaching and Learning Committee

Updated Charge

Sept 8, 2014

Givens:

I. The mission of East High School will be to prepare all its students for successful transitions into adulthood in our democratic society
II. All decisions will be consonant with the EPO application and its additions and amendments
III. The curriculum and instructional models will be based on current research regarding how people learn. (Learning Principles). The model for a coherent curriculum, as defined by Grant Wiggins and Jay McTighe, will form the basis for our curriculum development process. The unit format will be *Understanding by Design*. Instructional models will vary.
IV. Curriculum development will be a multi-year process. It will begin with curricula that:
    A. are currently in use
    B. address the Common Core Learning Standards
    C. may feasibly be modified over time to become ever more consistent with:
        1. the needs and interests of the East Community
        2. current, content specific theory and research
V. The Committee has been charged by the EPO Leadership Team to make its recommendations using an 80% consensus model ( 80% can support publicly and privately)

Curriculum Tasks

I. Design processes for familiarizing faculty with current research conclusions regarding how people learn (Learning Principles Include in packet for Committee)
II. Make preliminary curriculum recommendations to the EPO Leadership Team
    A. Process 1, to be completed by Oct 22
        1. Coordinate/ Facilitate subject specific task forces, consisting of RCSD teachers
            a. Who will Utilize Curriculum Evaluation Chart (enclosed) to assess and advise Teaching and Learning Committee Curriculum that meet the following criteria:
                (1) Is currently developed (existing curriculum, currently used somewhere)
                (2) Has research support for results
                (3) Addresses the CCLS
                (4) Sequentially builds learning over time and across years
                (5) Faithfully aligns to the learning principles (see attached) including guaranteeing rigorous, content-specific knowledge
                (6) Is highly engaging
                (7) Fosters student agency (empowerment, ownership, choice) [learner-centered principles]
                (8) Is culturally relevant and responsive, including issues of social justice
                (9) Prepares students for participation in a democracy (skills and/or content)
                (10) Teaches thinking skills
                (11) Prepares students for the global workforce

B. Process 2, to be completed by Nov. 15
    1. Utilize input and our own research to make recommendations to the Leadership Team re: Curriculum and 6-12 courses of study by November 22
    2. Recommend to the EPO Leadership Team decision points and processes for Acceleration/advanced placement, college and career readiness options
C. Process 3, to be completed by November 14
    1. design and articulate the conceptual framework for 6th grade program
    2. Define multi-tiered system of support (academic side)

III. Next Phases of Planning- January – June 2015
A. Plan the processes for ongoing professional learning
    1. Scheduled daily collaborative periods
        a. Define a cycle for Subject specific (department/course) collaboration in the use of data to inform instruction
        b. Cross subject (team) collaboration
            (1) Recommended agenda to be defined
    2. Professional Learning cycle
        a. Differentiated for new teachers versus veterans
        b. Across course of year via meetings as PD sessions
B. Identify outcomes for Summer professional learning academy
C. develop multi-year curriculum development calendar

IV. Next Phases of Planning- Summer 2015
A. Identify opportunities for interdisciplinary units