

## Convergence

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There is a popular young adult novel series, and now a movie, entitled *Divergent* (Wikipedia, n.d.). It is about a society split into factions. Those five factions emphasize certain human characteristics over others and underscore the differences between us. The factions accentuate what is different about the human race and devalue the similarities. The young adults in the series fight against a society that has defined life with categories based upon interests and traits. To the young people, the society's categories look artificial and harmful to the development of a complete, well-rounded person, but the adult world created the categories to deal more efficiently with an ever more complex civilization. The Proficiency movement is a new manifestation of creating categories for ease of bureaucracy in our present-day education world.

As in the dystopian series, public education is also often split into factions: English/Language Arts, Math, Science, Social Studies, and Fine/Applied Arts. Educators have been trained to look at learning through these lenses and to focus upon the elements that make each faction unique. Our education systems seem to be hardwired to create categories and place teaching and learning into defined boxes different from one another.

My experience with middle school students tells me that to have a better understanding of our differences, it is first important to recognize what we have in common. Instead of stressing what makes our disciplines diverge from one another, maybe we should look for the teaching practices that are similar within our standards and disciplines. All disciplines ask questions and pose problems. Each discipline then sets on a series of tasks to address the questions and problems. Ultimately, the results are reported in some fashion and assessed learning takes place.

Over the past few years, public education has seen a new set of standards released for most of our traditional factions. The *Common Core State Standards for English Language Arts and Literacy*, the *Common Core State Standards for Mathematics*, the *Next Generation Science Standards* and the *College, Career, and Civic Life (C3) Framework for Social Studies State Standards: Guidance for Enhancing the Rigor of K-12 Civics, Economics, Geography, and History* have all emerged within the last five years. It is not fair to say that all of these standards-based factions make meaning and place value on the natural process of learning in exactly the same way, but they do have similarities. In each discipline we often ask: What is most important? What trends and patterns are evident? How is this similar to, or different from, what we already know?

This is where the factions converge – on the concept of curiosity. In each of these nationally released content publications there is an emphasis on real-world, integrated learning fueled by student driven questions that stress critical thinking, problem solving, and communication. These latest generation standards integrate previously separated, discreet content standards. Each subject calls for similar practices to engage our students. Despite our separate subjects, the most recent emphasis in each discipline, as seen through these standards, says our teaching and learning should be more alike than different. These common practices converge with the democratic, project-based learning espoused by John Dewey (Wisdom, 2011) and others.<sup>1</sup>

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<sup>1</sup> Others who espouse democratic education through authentic learning opportunities include: the Responsive Practices of Bank Street School (Bank Street School for Children: History and Philosophy, n.d.) ; the Field Studies (Holiday, 2012) of the United

The young adults in *Divergent* embrace their commonalities and look to break down the walls between factions in order to create a better society for all. Does this sound familiar? Has not this been the message of middle grades education for the past 40 years? Should not our different factions work together to make this happen? How can our subjects converge so as to intentionally merge our practices for the common good? Below are summaries of the newly created content standards followed by prominent middle grades learning approaches:

- Common Core ELA Standards promote integrated approaches and application of knowledge and concepts in real world settings. Through inquiry and the emphasis on reading, writing, speaking, listening, and making connections using short, focused research projects and performance tasks, the ELA standards ask teachers to develop projects that will engage and challenge students.
- Common Core Standards of Mathematical Practice set expectations for students to do real-world problem solving, use mathematical modeling, apply statistical analysis, and communicate their understanding to others. Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society and the workplace. These applications certainly have a place within projects that ask students to use mathematical concepts and procedures in authentic contexts
- Next Generation Science Standards state that student performance expectations have to include a student's ability to apply scientific practice to content knowledge. Performance expectations focus on understanding and application as opposed to memorization of facts without supporting content. Learning involves the integration of content knowledge and the

practices needed to engage in scientific inquiry and engineering design. The study of science is connected through a series of concepts that further our understanding of the world around us.

- Social Studies C3 (College, Career and Civic Life) Framework (Swan, Lee, Mueller, & Day (Eds.), 2013) guiding principles include inquiry at the heart of the discipline. The document centers on learning driven by the use of questions sparked by curiosity to guide instruction, deepen investigations, acquire rigorous content, and enable students to apply knowledge and ideas in the real world.
- Field Studies (Queens University, n.d.) are on-site activities aimed at examining a question by collecting primary, original data using methods such as face-to-face interviewing, direct observation, and creating real-world interactions with the identified subject.
- "Place-Based Education is the process of using the local community and environment as a starting point to teach concepts in language arts, mathematics, social studies, science, and other subjects across the curriculum. Emphasizing hands-on, real-world learning experiences, this approach to education increases academic achievement, helps students develop stronger ties to their communities, enhance students' appreciation for the natural world, and creates a heightened commitment to serving as active, contributing citizens." (University of Vermont, n.d.)
- Project-Based Learning (Buck Institute of Education, n.d.) aims to guide students through the curriculum using meaningful questions that engage them in real world issues and/or design challenges. Examining real questions about the world is at the heart of this approach. In order for students to do this they need to develop the capacity to work with other students while they inquire into the issues raised, efficiently learn content and skills, propose an answer or solution, create high quality products, and

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Kingdom (Field Studies Council: a Brief History of the FSC, n.d.); the Emergent Education of Jessica Howard (Hiland Hall School, 2013); and the Place-Based Education of Antioch University (Antioch University, 2014).

effectively present their work to other people.

- Proficiencies (Great Schools Partnership: Proficiency-Based Learning Simplified, n.d.) seems like the offspring from a marriage of Benjamin Bloom's Mastery Learning and John Dewey's Progressive Education. Standards-based education meets project-based learning with real-world applications.

Steeped in the history of progressive education, philosophy of John Dewey and teaching practices from the Bank Street School, Emergent Learning (Connors, 2010) argues that curriculum should emerge from student interest and, by creating questions and developing plans to pursue them, the student and teacher can participate in the exploration together.

There are plenty of ways these content standards and learning approaches overlap. If left to our own devices, middle grades educators could probably figure out how to move forward in the progressive tradition that began in the 1970s. Unfortunately, in too many schools, the dystopian post-progressive world we live in today is littered with the residual shells of organizational structures from the 1980s and 1990s. Teams and advisories, if they exist, often exist without the leadership and/or value to make them meaningful. Teams with too many students, too little planning time, no individualization, limited connection to the world outside of the classroom, and alignment to politically-inspired testing protocols flounder in administrative constructs that no longer link to the possibility of progressive education.

The either/or world of traditional versus progressive education explained by John Dewey in his *Experience and Education* (Dewey, 1938) is haunting us through corporate-created curriculum in Common Core textbooks and internet-based educational apps that create empty activities disconnected from meaningful experiential opportunities. Where should we turn?

We do not have to look very far. As in the *Divergent* series, our young people can show the way. The 7<sup>th</sup> graders I work with are quick to point out the similarities between the skills and topics they are exposed to in their classes that make up their seven-period school day. They want to make more connections and have a more seamless experience between the classes they are sent to each day. When we specifically examine math, science and arts topics, along with history, citizenship and culture, and in our social studies class using ELA Common Core skills, the students begin to make the connections between subjects.

The other day our class watched an excerpt from a video called "The Language of the Universe". It was about the rise of mathematics in the ancient world. Students watched the video, took some two column notes and had about 30 minutes to respond to the question, "How did math progress in the ancient world and become known as the 'language of the universe?'"

Ben, a 7<sup>th</sup> grader, answered:

The beginning of math in the ancient world established math as the language of the universe when ancient civilizations began to use mathematics in their daily lives. To begin with, people began to use math to count. It helped with their daily lives, and it was integrated into their daily activities. Farming and trading required basic math computation. In addition, math was used to measure physical objects, such as plots of land. In ancient Egypt, measuring field size helped establish taxes, and taxes were important for governments to provide the structures needed to organize more complex societies. Roads, markets, uniform measurements and weights, and armies for protection and resource collection were paid for through taxes.

Also, math was used to measure time. People needed to know when to plant crops and perform rituals, which was very important for their daily lives. In Mesopotamia people used

the base 60 math system and created 60 seconds for a minute and 60 minutes for an hour. The measurement of time stuck with civilization, and helped establish math as the language of the universe. The claim that “math began with counting and measuring, but evolved as civilization did” is supported throughout the video. At the beginning, the video talks about how math began with counting and measuring. However, as taxes began, people needed to be able to find the area of land. They also needed to use fractions to share food equally - the video described splitting nine loaves of bread between ten people. Math evolved with people’s needs.

The main idea of this video is that math is the “language of the universe”. The video describes how math finds patterns, trends, order, and rules in the world, and how math generally organizes everything around us. This proves that math changes with time, and is everywhere around us.

Pythagoras, the Golden Ratio, the beginnings of geometry and algebra, Aristotle and the Scientific Method, Gilgamesh and the origins of written storytelling are all a part of 7<sup>th</sup> grade social studies at Brattleboro Area Middle School. Integrating math, science, social studies, and language arts into the curriculum can be a conscious choice. As the facilitators of student experiences in our classes, teachers can provide students with the opportunities to see beyond our subjects and make meaningful connections between disciplines/factions. Big History (Big History Project, n.d.) is an approach to the study of the past. It emphasizes the science, technology, engineering, economics, geography and mathematics (TED, 2011) that have occurred throughout civilizations and provides a good lens to look at the concept of convergence. Convergence is not a new idea.

Chris Stevenson and Judy Carr put together a book back in 1993 entitled *Integrated Studies in the Middle Grades: “Dancing Through Walls.”* While it comes from a seemingly simpler time, the ideas are still relevant, just as

John Dewey’s 1938 *Experience and Education* is still the foundation of integrated, student-centered learning. Stevenson and Carr (1993) provided examples of integrated learning and teacher reflection on that learning. For instance, the late Ken Bergstrom commented on his teaching practice:

So, despite the restrictions of my teaching environment, despite the suspicions of others that I’m not covering enough material, I will continue to use inter-disciplinary study to create a meaningful, healthy and loving learning atmosphere for my students. I want them to wonder, dream, invent, struggle, argue, inquire, design, imagine, fail, rethink, succeed, and learn to love life and learning. Interdisciplinary study is the best approach to help me-and them-to reach these ends. (p. 1)

In the foreword for Stevenson and Carr, James Beane wrote, “At present, the idea of national tests and a national curriculum is proving to be a seductive one” (1993, p. x). I think we may have been seduced. In the past decade *Common Core State Standards* and the accountability regime led by *No Child Left Behind* and high states testing have come roaring into our lives. They represent factions that have come as close as anyone to establishing national tests and curriculums. How can a student-centered, progressive educator survive in such times? Project-based learning, integrated units, place-based learning, and emergent learning found within proficiency-based learning show a pathway to the expectations placed upon us today by *Common Core State Standards* and *Smarter Balanced Assessment Consortium*. It is the convergence of these practices that will give my classroom meaning and allow my students to “wonder, dream, invent, struggle, argue, inquire, design, imagine, fail, rethink, succeed, and learn to love life and learning.”

As in the *Divergent* book series, it is not easy for our factions/disciplines to let go of our tendencies and structures to create a more seamless experience for our students. In the past; specialization has meant expertise and

expertise has meant a competitive advantage. The specialized knowledge/competitive advantage has been highly valued and honored by our society. Do the present factions – math, science, social studies, language arts, fine and applied arts – represent the specialization necessary to be a successful life-long learner? Maybe, but I suggest a convergence of these factions for the betterment of the common good. It will take a re-imagining of the time and resources used in schools. It will cause us to be facilitators of our student's learning experiences and cause us to be more collaborative with our teaching colleagues. Mostly, it will cause us to be more open to the possibilities our students present us with every day. It could be fun. ❖

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