Leading Schools From the Emerging Future
By Dr. Connie Kamm

This article is one portion of a three-part series on the shifts needed to transform K-12 education to meet the challenges of the future. Part 1 examines the international concept of transversal competencies. Part 2 explores classroom teaching and learning for the future through a proven multidisciplinary, problem/solutions-based curriculum model. Part 3 concentrates on the changing role of leadership and the need to engage in awareness-based change in order to co-create a more promising future.

Part 1: Focusing on Transversal Competencies

The current period in history is being labeled as the Exponential Age, a time when change is occurring so rapidly that it is difficult for individuals and organizations to keep up. John Seeley Brown, the former Chief Scientist of Xerox Corporation and a current Visiting Scholar at the University of Southern California, explains that this current age is characterized by a shift from an S-curve world to a zigzag of constant disruption. In the S-curve world of the past, broad change occurred followed by 60 to 80 years of relative stability where social and institutional practices had a chance to catch up, to stabilize. Growing up in this world allowed young people to set a course of action, like a sailboat moving toward a desired destination. The S-curve world has given way to a zigzag fraught by 12 to 18 month cycles of disruptive changes occurring one after another, keeping institutional and personal challenges in flux. Growing up and functioning in this era is like navigating roiling rapids on a raft. It is essential to learn how to accurately read the context and flows and respond quickly and effectively to what is beneath the surface.

At the heart of this Exponential Age of rapid, unrelenting change are today's cyber-physical systems (CPS) that include innovations like artificial intelligence, robotics, 3D printing, synthetic biology, gene editing, and digital medicine. The National Science Foundation defines CPS as engineered systems that are built from the seamless integration of computational algorithms and physical components. They point out that, "CPS technology will transform the way people interact with engineered systems -- just as the Internet has transformed the way people interact with information." New smart CPS will drive innovation and competition in multiple industries, e.g., agriculture, energy, transportation, construction, education, entertainment, healthcare, and manufacturing (Cyber- Physical Systems (CPS), 2017).

A shift in available jobs is one ramification of the current cyber-physical revolution. According to a study done by Oxford University, there will be a digital solution for 47% of current jobs in the US within the next 25 years. These labor market challenges are only going to be further exacerbated by the continued development of cyber-physical systems. In addition to a loss of jobs, this fluctuating workplace also demands that workers have the ability to continuously develop new skills and

mindsets to prepare for warp speed changes as they occur and newer, more highly technical jobs that may develop.

As the world is shifting, so must our system of educating children. Our students are not served well by the mechanistic approach from the past – teach, teach, teach, test, move on. The traditional teaching and learning model is defunct. A classroom where all students passively receive the same information from a teacher who is the sole distributor of a textbook curriculum does not serve a future-focused learner. However, due to deeply entrenched patterns of standardization, schools have kept this mass production model alive. In the United States, education policies like *No Child Left Behind* reinforced this dated model of schooling. As a result, little has changed in teaching, learning, and leading schools for the past 100 years.

Due to massive global shifts, however, it is now becoming clear to many educators throughout the world that a change from this depersonalized assembly line system is imperative. They realize that to effectively prepare students for the challenges and choices they face in the future, education must be dynamic, authentic, innovative, and rehumanized. In addition, educators globally are also realizing that beyond mastering skills, concepts, and content contained in learning standards, today's learners must also strengthen additional competencies that prepare them to succeed in an ever-changing world.

Since the turn of this millennium, educators have grappled with the identification and implementation of 21st century skills. That outdated and sometimes limited label is being replaced by a more encompassing understanding. Internationally, these dynamic future-focused skills and qualities are most recently being referred to as *Transversal Competencies*. There are many frameworks that include lists identifying these competencies, but they all share common areas:

- **Thinking Dynamically:** Curiosity, creativity, innovation, critical thinking, and problem solving;
- **Knowing Oneself**: Self-efficacy, Initiative, resilience, mindfulness, growth mindset, and brain awareness;
- **Caring About Others:** Intercultural understanding, openness, empathy, and compassion; and
- **Engaging With Others:** Collaboration, communication, social skills, conflict resolution, and emotional intelligence.

These competencies are common across content areas and are critical to students' future success in this rapidly changing world.

To further communicate this concept of Transversal Competencies, consider Figures 1 and 2. In

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geometry, a transversal is a line that intersects other lines. If two lines are parallel, one representing a timeline beginning in the 1700s and the other representing disruptive innovations since the advent of steam engines in the late 1700s, consider the position of the transversal, represented by the purple arrow, which symbolizes school practices. In figure 1, the transversal represents our current industrial, mass production model of school. Students are not being prepared for the future world of work. Even in classrooms and schools where each student can access a computer, there is often still too much teacher directed learning aimed at the "average" student.

Figure 1: Current Practice

Current Practice is Still Dominated by a Mass Production Mindset
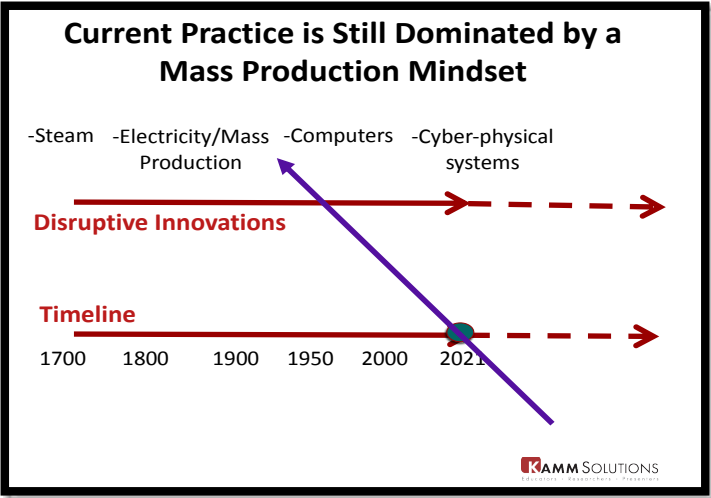
In Figure 2, however, the transversal represents a school system that is intersecting the present but is leaning into the future through the implementation of improved methodology that stimulates the development of the skills and qualities embedded in the Transversal Competencies.

Figure 2: Developing Transversal Competencies

Activating Future-Ready Learners for a Volatile, Uncertain, Complex, Ambiguous Future
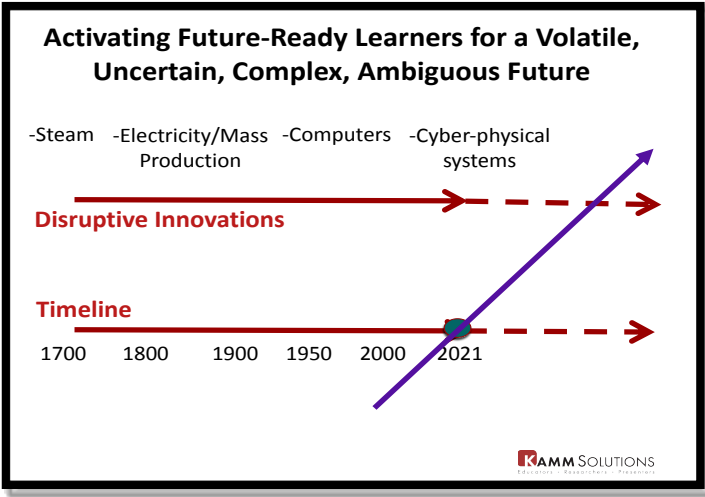
Making a commitment to infuse Transversal Competencies in daily classroom learning experiences has wide implications for teaching, learning, and leading in schools. The curriculum will need to be more dynamic, authentic, and grounded in inquiry. Learning will be more personalized, providing students with greater choice and voice. Connections between disciplines and authentic interactions with the community outside the school will also be part of the focus.

Not only will the curriculum need to be rethought, but leadership must also shift. Peter Druker, a well-known management consultant, educator, and author, observed, "The greatest danger in times of turbulence is not the turbulence. It is to act with yesterday's logic." To support transformation, leaders must create cultures anchored on trust that are inclusive and encourage risk taking and innovation. In addition, leaders will also need to commit to rich and differentiated professional learning that is embedded in the classroom and supported by modeling and coaching. Finally, leaders will also need to learn how to effectively facilitate awareness-based change initiatives that engage all stakeholders in a process of co-creating solutions to long-standing practices and perspectives.

These curriculum and leadership topics are more thoroughly addressed in Parts 2 and 3 of this series.

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