THE NEED FOR WHOLE-DISTRICT TRANSFORMATION [1]

The four of us who developed the proposal to help position AECT as a national leader in the area of school system transformation through technology believe that piecemeal change to improve schooling is an approach that at its worst does more harm than good and at its best is limited to creating pockets of "good" within school districts. When it comes to improving schooling, however, creating pockets of good in a district isn't good enough. To create excellence within school districts, we must change the paradigm from one developed for the Industrial Age that is standardized, time-based, and sorting-focused to one that is more appropriate for the evolving Information Age that is customized, attainment-based, and learning-focused (Reigeluth, 1994). Furthermore, whole school districts need to be transformed, because transforming a single school (or program) makes it incompatible with its school district, leading to its inevitable conversion back to the Industrial Age paradigm. Only with district-wide transformation that creates such a paradigm change can we create unparalleled improvements in student, faculty and staff, and whole-system learning. Shifting to a totally new paradigm is known as systemic transformational change.

THE TRADITIONAL APPROACH TO SCHOOL IMPROVEMENT

Ever since John Goodlad proclaimed in 1984 that the school building was the appropriate unit of change for improving schooling, that approach—improve one-school-at-a-time—has dominated efforts to improve schooling in America. So, why, after more than 30 years of applying that philosophy has so little changed? It is because that approach, while important and still needed, is inherently insufficient because it disregards the nature of school districts as intact, organic systems governed by classic principles of system functioning. It is insufficient because it is a piecemeal approach that fails to improve entire school systems.

The efforts of educators to improve schooling over the past 30+ years can also be captured in a simple metaphor that goes like this:

> Rolling across America is a long train called "The School Improvement Express." The triple societal engines of standards, assessment, and accountability are pulling it. The lead engine goes by the name "The No Child Left Behind Engine That Could." The rolling stock is composed of school systems and a myriad of contemporary school improvement models, processes, and desirable outcomes. The train has once again come to a stop at a broad and deep abyss that goes by the name "The Canyon of Low Performance." On the far side of the abyss lays the "Land of High Performance." The riders on the train want to go there. In fact, they have wanted to go there for years but have failed to make the crossing, and so they keep returning here to the edge of the abyss to stare across with longing in their hearts wondering how they will ever traverse it.
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> Standing at the edge of this great abyss, some educators see a threat, while others see an opportunity. Some see an impossible crossing, while others see just another puzzle to be

[1] This document was prepared by Francis Duffy with input from Charles Reigeluth, Jerry Kemp, and Stephanie Moore. Questions may be directed to Duffy at fmduffy@earthlink.net or by calling 301-854-9800.

> solved. Meanwhile, the pressure in the three great "engines" for setting standards, assessing student learning, and holding educators accountable for results continues to build and shows no sign of dissipating. The "engineers" have their hands on the brakes but they can feel the pressure of the engine trying to edge the train forward, which feels like having one foot on the brake of a car while stepping on the gas with the other foot.
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> Even though the train has rolled across a lot of ground and although its passengers have done good things along the way, there they stand one more time looking out over the abyss wondering how in the world they will get to the other side. Some of those standing at the edge say, "Impossible, can't be done." Others say, "We've been here before and failed then." Still others stand there and theorize about the complexity of crossing such a canyon. "It's so hard to define the boundaries of the canyon. Just what is a system, what does it mean, is it this or is it that? We need this, this, this, and that or we'll never cross," they suggest, but then they take no action to do what is needed. Still others, looking backward at the long train say, "What's behind us is the future. What we have done in the past is what we should continue to do."

Despite a strong desire to create high performing school systems educators have been unable to do what's needed to create those kinds of systems because of the inherent deficiencies of the one-school, one program-at-a-time approach to improvement. Given this insufficiency of the traditional approach to school improvement there is a clarion call to scale-up school improvement to the level of the whole-district (Supovitz, 2006) and some districts are now engaging in whole-system change. But the kind of whole-system change they are engaging in is still failing to produce and sustain desired results. What is required to create and sustain whole-district change is a process called systemic transformational change. This approach to whole-district change is a trestle that can carry the "school improvement express" across the "canyon" to the "land of high performance." And AECT in collaboration with selected State Departments of Education can and should build that trestle.

SYSTEMIC CHANGE IN SCHOOL DISTRICTS

In the field of organization improvement the alternatives to piecemeal change are systemic change and systemic transformational change. The difference is explained below.

Systemic Change

Systemic change has a mysterious sound to it. Some people have a hard time getting their minds around the idea, and they cannot envision a school district as a system. All they see is a collection of unconnected individual schools and programs. Some people catch a glimpse of a district as a system, but cannot hold onto the image. Still others define a school system as a classroom inside a school inside a cluster of schools inside a district inside a community inside a state inside a region inside the country inside the world inside the universe. This mental model is often referred to as a "nested system" (e.g., Bronfenbrenner, 1977, 1979). Although theoretically correct, it is notably useless for informing the practice of school district improvement. How can anyone improve a system that complex? Instead, the "system to be improved" is everything inside what is commonly called a

school system and everything outside that system is its external environment (see Emery & Purser, 1995 for more guidance about defining the system to be improved).

There are several different ways in which the term "systemic change" is used. This definitional confusion was identified by Squire and Reigeluth (2000). Reigeluth and Duffy (2006) commented on these different definitions. They are:

> *Statewide policy systemic change*. Systemic change used in this context creates statewide changes in tests, curricular guidelines, teacher-certification requirements, textbook adoptions, funding policies, and so forth that are coordinated to support one another (Smith & O'Day, 1990). This meaning is how policy makers typically think of systemic change.
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> *Districtwide systemic change*. From this perspective, systemic change produces changes in curriculum or programs instituted throughout a school district. This meaning is how P-12 educators typically think of systemic change.
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> *Schoolwide systemic change*. People holding this view of systemic change focus on what happens inside individual school buildings. Systemic change in this context is any change or program instituted throughout a school. This meaning is how educators participating in groups such as the **Coalition of Essential Schools** typically think of systemic change.
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> *Ecological systemic change*. From this point of view, systemic change is based upon a clear understanding of interrelationships and interdependencies within the system of interest and between the system of interest and its external "systemic environment." Change leaders subscribing to this view recognize that significant change in one part of their system requires changes in other parts of that system. Of necessity, this meaning of systemic change subsumes all the other three meanings, and it is how "systems thinkers" view systemic change (see e.g., Ackoff, 1981; Banathy, 1996; Checkland, 1984; Emery & Purser, 1996; Senge, 1990).

There are examples of all four kinds of systemic change in the United States; e.g., in the Baldrige award-winning Chugach Public Schools in Anchorage, Alaska, in the Frederick County Public Schools in Maryland, and in the Duvall County Public Schools in Florida. Other districts engaged in systemic change were described in a research study by Togneri and Anderson (2003). The districts in that study were:

- Aldine Independent School District, Texas
- Chula Vista Elementary School District, California
- Kent County Public Schools, Maryland
- Minneapolis Public Schools, Minnesota
- Providence Public Schools, Rhode Island

The one definition of systemic change not included in Squire and Reigeluth's original compendium of definitions is the one for systemic transformational change. This special instance of systemic change is described next.

Systemic Transformational Change

In the opening, we introduced the term "systemic transformational change." Over the past decade the notion of systemic transformational change has emerged as a methodology that is needed to improve all kinds of organizations. For example, Nevis, Lancourt and Vassallo (1996) talked about transforming organizations. They said

> To transform something is to change its fundamental external form or inner nature. Physicists refer to transformation as the conversion of one form of energy to another. When water is boiled, it is transformed into steam. Its chemical formula is the same, but its form and properties are qualitatively different. In the world of nature, a caterpillar is transformed into a butterfly; its DNA remains unchanged, but its form and properties are fundamentally different. *A butterfly is not a caterpillar with wings strapped on its back* (pp. 11-12).

School districts can also benefit from systemic transformational change. But, systemic transformational change in education requires educators in school systems to break free of their controlling mind-set [2] or paradigm for how to educate students to create a substantially different paradigm for delivering education services to students. For example, the controlling paradigm for most of America's school systems is based on an old Industrial-age approach to teaching children; that is, sort them into grades and classes and provide group instruction and then move the groups of students through a sequential instructional program often ranging in length from pre-Kindergarten through 12th grade. Within this time-based and sorting-focused system students are required to move on to the next topic based on the calendar, regardless of whether they have learned it or not. This creates learning deficits that make it even more difficult for the students to learn future material. The industrial-age system was designed to leave children behind. We will never succeed at "leaving no child behind" until we change the paradigm to one in which the students only move on to the next topic when they have mastered the present one, and they are allowed to move on to the next topic as soon as they have mastered the present one. Technology is essential to create such a customized educational system.

A competing paradigm that is rarely found in public school districts in the United States might have the following characteristics:

- Focus on each child's uniqueness
- Foster learning through activity
- Recognize that one size does not fit all when it comes to teaching and learning

The above alternative paradigm goes by the name "learner-centered education." Shifting an entire school system from the old controlling paradigm to a totally different paradigm for educating students is an example of systemic transformational change.

Making a paradigm shift like the one suggested above requires a tri-level approach to systemic transformational change where the levels are: 1) state department of education, 2) a district's local

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[2] Jerry Kemp, one of the co-authors of the AECT proposal to facilitate systemic transformational change in school districts, developed a short pamphlet that presents a parable of sorts that helps us understand the required mind-set change. You may have received a copy of that pamphlet.

community, and 3) the local school system (Barber & Fullan, 2007). In commenting on the need for tri-level development Barber and Fullan said,

> Our recent work is based on two interacting assumptions. One is that in order for educational re-form to be sustainable we must focus on tri-level development, namely, what has to happen at the school and community level; at the district level; and at the state level. The second assumption is that we need initiatives that deliberately set out to cause improvement at the three levels and in their interrelation-ships.
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> We are calling for live experiments where policy makers commit to tri-level development, learn from it, and go deeper (p. 1).

The systemic transformational change initiative that is being proposed responds to this call by using a methodology that requires change along three paths.

THREE PATHS TO SYSTEMIC TRANSFORMATIONAL CHANGE

Over the past 50 years a lot has been learned about how to improve entire systems (e.g., Ackoff, 1981; Banathy, 1996; King & Frick, 1999, Pasmore, 1988; Pava, 1983a, 1983b; Reigeluth, 1994). One of the core principles of whole-system transformation is that three sets of key organizational variables must be improved simultaneously (e.g., see Ackoff, 2001; Duffy, 2003; Duffy, Rogerson & Blick, 2000; Pasmore, 1988). These three sets of variables are characterized as change paths. Each of these change paths is explored briefly below.

Path 1: Improve a District's Relationship with Its External Environment

A school district is an open system. An open system is one that interacts with its environment by exchanging a valued product or service in return for needed resources. If change leaders want their district to become a high performing school system they need to have a positive and supporting relationship with stakeholders in their district's external environment. But they cannot wait until they transform their district to start working on these relationships. They need positive and supporting relationships shortly before they begin making important changes within their district. So, they have to improve their district's relationships with key external stakeholders as they prepare their school system to begin its transformation journey.

Path 2: Improve a District's Core and Supporting Work Processes

Core work is the most important work of any organization. In school districts, the core work is a sequenced instructional program (e.g., often a preK-12th grade instructional program) conjoined with classroom teaching and learning (Duffy, 2002; Duffy, 2003). Core work is maintained and enriched by supporting work. In school districts, supporting work roles include instructional technologists, administrators, supervisors, education specialists, librarians, cafeteria workers, janitors, bus drivers, and others. Supporting work is important to the success of a school district, but it is not the most important work. Classroom teaching and learning is the most important work and it must be elevated to that status if a school system wants to increase its overall effectiveness. Further,

teaching and learning must shift from traditional classroom teaching to "learner-centered education" which would include some of the following characteristics:

- Personalized, self-directed learning
- Project and problem-based activities
- Projects focusing on community needs and useful experiences with community leaders and organizations
- Flexible blocks of study and activity times
- Multi-disciplinary curricula with team teaching
- Teachers as mentors and facilitators with students
- Technologies used as essential resources for teaching and learning
- Performance-based assessment of student learning with mastery as the goal

Changes in classroom teaching and learning as suggested above require systematic planning for curricula development, teaching/learning methods, and evaluations of student learning and measuring program success. This component of transformational change is based on attention to the elements of an instructional design process.

When trying to improve a school system, both the core and supporting work processes must be improved. Further, the entire work process (e.g., preK-12th grade) must be examined and improved, not just parts of it (e.g., not just the middle school, not just the language arts curriculum, or not just the high school). One of the reasons the entire work process must be improved is because of a systems improvement principle expressed as "upstream errors flow downstream" (Pasmore, 1988). This principle reflects the fact that mistakes made early in a work process flow downstream, are compounded, and create more problems later on in the process; for example, consider a comment made by a high school principal when he first heard a description of this principle. He said, "Yes, I understand. And, I see that happening in our district. Our middle school program is being 'dumbed-down' and those students are entering our high school program unprepared for our more rigorous curriculum. And, there is nothing we can do about it." Upstream errors always flow downstream.

Improving student learning as suggested above is the primary goal of improving the core and supporting work processes of a school district. But **focusing only on improving student learning is a piecemeal approach to improvement**. A teacher's knowledge and literacy is probably one of the more important factors influencing student learning. So, taking steps to improve teacher learning must also be part of any school district's transformation efforts.

Further, while improving student and teacher learning are two important goals of improving work in a school district. But this is also a piecemeal approach to improving a school district because a school district is a knowledge-creating organization and it is, or should be, a learning organization. Professional knowledge must be created and embedded in a school district's operational structures and organizational learning must occur if a school district wants to develop and maintain the capacity to provide children with a quality education. So, school system learning (i.e., organizational learning) must also be part of a district's transformation strategy.

Path 3: Improve a District's Internal "Social Infrastructure"

Improving work processes to improve learning for students, teachers and staff, and the whole school system is an important goal but it is **still** a piecemeal approach to change. It is possible for a school district to have a fabulous curriculum with extraordinarily effective instructional technology supporting it but still have an internal social "infrastructure" (which includes organization culture, organization design, communication patterns, power and political dynamics, reward systems, and so on) that is de-motivating, dissatisfying, and demoralizing for teachers. De-motivated, dissatisfied, and demoralized teachers cannot and will not use a fabulous curriculum in remarkable ways. So, in addition to improving how the work of a district is done, transformation efforts must focus simultaneously on improving a district's internal social "infrastructure."

The social infrastructure of a school system needs to be redesigned at the same time the core and supporting work processes are redesigned because it is important to assure that the new social infrastructure and the new work processes complement each other. The best way to assure this complementarity is to make simultaneous improvements to both elements of a school system.

Hopefully, this three-path metaphor makes sense because the principle of simultaneous improvement is absolutely essential for effective systemic transformational change (e.g., see Emery, 1977; Pasmore, 1988; Trist, Higgin, Murray, & Pollack, 1963). In the literature on systems improvement this principle is called joint optimization (Cummings & Worley, 2001, p. 353). This systemic transformational approach to educational change, while considerably more difficult than piecemeal change, is possible and is indeed being carried out successfully in the Decatur Township in Indianapolis. Furthermore, it is the only approach that can yield significant improvements in student learning in the Information-age and enable technology to realize its potential contribution to education.

CONCLUSION

Despite the paucity of real-life examples of district-wide, systemic transformational change, there are many examples of school-wide, systemic transformational change that were very successful until they were changed back to be compatible with the larger system (school district) in which they were embedded. There is also much evidence of the need for district-wide, systemic transformational change. It is being strongly advocated throughout the field of education (e.g., see Burney, 2004; Houlihan & Houlihan, 2005; Simmons, 2006; Wright, 2004), in the world of work (e.g., see the report by the New Commission on the Skills of the American Workforce or the Educational Commission of the States' Report, "Bending without Breaking"), and in government (e.g., see the U.S. Department of Education's report, "Prisoners of Time"). Likewise, the reliance of transformational change on technology is widely recognized – a utilization of technology that goes way beyond using it to support what is currently happening in classrooms (e.g., see Krueger, 2005).

Finally, there is much evidence of a strong interest in the systemic transformational approach. This interest is validated by people such as Joseph Simpson, the Deputy State Superintendent of Education for Wyoming and former Deputy Director of the Council of Chief State School Officers who told us in E-mail correspondence about his department's interest in facilitating systemic

transformational change in Wyoming's school districts. And, he identified several other state departments of education that he also believes are interested in engaging. Many people recognize, like Joe Simpson does, that America's school systems need to be transformed—not tweaked, not improved one building or one program at a time—to become something fundamentally different than what they are today.

Members of the AECT Division for Systemic Change, and members of other AECT divisions, are uniquely qualified to facilitate systemic transformational change in partnership with selected state departments of education that are identified as ready to work on systemic transformation with school systems in their states. While there are associations purporting to offer training with a focus on systemic change (e.g., the AASA), there is no other national-level association that we know of that is doing the kind of facilitation that members of the AECT Division of Systemic Change are proposing. Therefore, approving and funding a proposal to facilitate systemic transformational change in collaboration with selected state departments of education will establish AECT as a national leader not only for truly effective school system improvement, but also for powerful new ways to harness the potential contribution of technology to human learning and school system performance.

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