

# Revolutionizing School Reform for Educational Transformation

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## Changeless Reform or Educational Revolution?

The debate over what should be done to improve the effectiveness of American K–12 educational systems has been refueled by the dialogue springing from the enactment of the No Child Left Behind Act of 2001 and the subsequent ripples that this legislation has caused (Robelen, 2004). On the one hand, the spirit of the law has been praised, while on the other the letter of the law is criticized because it requires the labeling of schools that can obscure remarkable improvement (McCall, Kingsbury, & Olson, 2004) and hinges on all student subgroups clearing the same hurdles. The solutions proposed include the allocation of more money (see Costrell & Peyser, 2004), greater attention to teacher quality, and transferring students from failing to successful schools. Such proposals are not novel in the predictable history of school reform—in fact reforms *du jour* typically repackage old solutions in hopes that “this time things will be different.” Hess (2004) groups such ideas and those who promote them under the moniker “status quo reform.” If the educational past can teach us anything, we should fear that NCLB will be yet another changeless reform.

In the spring of 2004, education officials in Washington, DC, announced changes to the interpretation of NCLB aimed at easing a few of the

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more onerous measures. The question that remains is: Can NCLB-type legislation and reforms that rearrange rather than change schools provide real hope for educational improvement? Based on about 15 years of experience working with schools to facilitate change, we think that the answer is “No.” It is our belief that transformation of education is most likely to succeed if it occurs by way of a design process undertaken and “owned” by educators in partnership with community stakeholders. In other words, for real improvement to take hold, schools must be re-visioned and redesigned by the people who will use them. This is a very different approach to school change with the potential for very different results.

The observation that the educational system itself is the source of the ineffectiveness that plagues American education is not new. Critics of reform *du jour* have pointed out that tinkering with the existing system is certain to produce results that fall short. Branson (1987) concluded that the current paradigm of schools operates at almost maximum efficiency and effectiveness and that the small margin between the current efficiency levels and 100% efficiency is not worth the expense of closing the gap. In other words even if we could get 100% productivity from our present system of education, we would be left wishing for a better education system—the paradigm of the system is keeping us from realizing the results that we want. A decade later, Covington (1996) made the point again by observing the tendency of school reform efforts to intensify current measures in hopes of achieving the educational heights we want. The *myth of intensification*, as Covington calls it, is the false hope that employing current strategies for improvement but executing them more often, for longer periods of time, with more money, more training, and higher standards will lead to real educational change and improvement.

As a real-world example of how genuine educational revolution produces markedly different results from typical educational reform strategies, we review a recently published book that reports on the successes of a school designed according to revolutionary principles. After a short synopsis of this successful school transformation, we focus on how the school is fundamentally different in curriculum and instruction from the current orthodoxy of how schools should be run. Next, we review design principles that are present in the school and which are likely to be organizing tenets of other transformational efforts. Having reviewed the *what* and *how* of school transformation as well as the foundational principles for implementing the design, we emphasize the importance of the transformation process that is critical to evolving and enacting a new paradigm of education. To support this point, we share our own field experience in a mid-western district that has embarked on a school transformation journey.

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## ***The Education Revolution: Spectacular Learning at Lower Cost***

Morton Egol (2003) presents a plan for America's educational future in his self-published book titled, *The Education Revolution: Spectacular Learning at Lower Cost*.<sup>1</sup> The "spectacular learning" is achieved essentially by cultivating a love of learning in students—something missing in the current system—under the recognition that high motivation is crucial for high student performance. The "lower cost" is largely accomplished by eliminating educational bureaucracy—a net gain of \$75 billion for the American economy if the system could transform itself overnight.<sup>2</sup>

The Community Learning Center (CLC) in Alameda, California is the incarnation of an educational microcosm that Egol is urging the country to take to scale in order to benefit from the educational achievements of a unique venture sponsored by Arthur Andersen.<sup>3</sup> Key features of the learning center model include a cross-disciplinary team of teachers (five), a heterogeneous community of learners (150), high levels of parent involvement as a condition of attendance, a flat governance structure that relies heavily on student participation, and individualized learning plans that include apprenticeships.

Egol makes the case for the need for a new system of education by explaining how the present system may have at one time worked for the industrial age but is obsolete in the information age. Key features of industrial-age education are a pedagogy of transmission, the passive role of students, the very structure of schools, and evaluation practices (e.g., letter grades). Egol points out that few efforts to effect educational change grasp the fact that key changes in society require fundamental changes in the educational system. Having overlooked this, most reforms reinforce the current system rather than introducing changes of substance.

As Egol juxtaposes his view of the current system with his vision of the future system, his language is emotionally charged:

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<sup>1</sup>The book is available, at \$21.95, from Wisdom Dynamics LLC, P.O. Box 174, Tenaflly, NJ 07670, as well as: <http://www.wisdomdynamics.com/>, Barnes & Noble book stores, and Amazon.com (the author's e-mail address: mortonegol@wisdomdynamics.com).

<sup>2</sup>Under Egol's system, educating a child would cost \$5,940 in 2002 dollars. The savings are realized in states that in 2002 spent more than this to educate each student. By his calculations, on pages 79 and 80 of his book, six states would actually be spending more money per student with his design.

<sup>3</sup>Egol was employed by the consulting firm and was instrumental in founding this new schooling model in 1996.

The contrast with the existing system of schooling is stark. The current education system withholds trust, robs children of their freedom, and does not treat them as individuals. Under this prison-like form of education, the learner has no rights and is tightly controlled within the classroom setting. The system teaches to a mythical 'average' student and thus fosters conformity and mediocrity. This runs counter to the values of individualism, creativity, and entrepreneurialism. (p. 7)

### **The Curricular *What of* School Transformation**

According to Egol (2003), given that different students learn at different rates, the key organizing element of most schools, specifically that all students learn the same content at the same pace, assures the failure of some students. Furthermore, schools presently under-emphasize the skill set that can be best described as the *tools of learning* in favor of a corpus of prescribed content.

As its name suggests, the information age is marked by an explosion of information and knowledge. The rapidly expanding body of knowledge presents real challenges for curriculum design. Egol implies that the current move toward standards-based reform does not adequately address the need for a change in curricular focus. Rather than a focus that emphasizes the acquisition of discrete chunks of curriculum, students should be helped to acquire and sharpen "the lifelong skills of Learning-to-Think and Learning-to-Learn that will enable them to acquire a wider range of knowledge as they need it" (p. 10). Egol proposes a regimen that he calls the "new basics," which would equip students for the information age where *learning to learn* is of paramount importance. These new basics include skills such as: strategic reading and speed reading, effective writing, research, note-taking, effective presentations, listening, dialogue, and logic, among others. These new basics are a similar departure from the current curriculum as those called for by many observers, including the U.S. Department of Labor (1991) and the American Psychological Association (Lambert & McCombs, 1998; McCombs & Whisler, 1997).

### **The Instructional *How of* School Transformation**

Egol identifies the shift from *teachers teaching to learners learning* as the central difference between the educational paradigms of the industrial and information ages. He advocates that students should be self-directed in their learning and that the curriculum should be constructed by learners rather than transmitted to learners. The role of teachers in the new system is one of facilitation and modeling. Indeed, teachers in Egol's "community learning center" (CLC) model are themselves learners pursuing their own learning goals.

Teachers in these settings work in teams to support learners in achieving their goals. Teachers are also key community liaisons as they work outside the school walls to arrange community partnerships and apprenticeship opportunities.

At the core of Egol's new design is the fundamental transfer of responsibility and motivation for learning from the teacher to the student. This is not achieved by fiat but by fostering learning motivation and capacity in each student as they set and achieve their own learning goals. Egol emphasizes that the shift from teaching to learning will result in savings as teachers turn from managing students to facilitating learning. He restates the premise of his argument: "If we redesign the system to take students out of 'classes' and empower them as self-directed learners, while transforming teachers into facilitators, there is no limit to the quality that can be achieved at lower per-pupil costs" (p. 28).

While Egol's recommendations for this new approach to learning and instruction are based on the Alameda CLC, he does not cite research evidence to support it. Nevertheless, much research support does exist, most notably from the American Psychological Association (Lambert & McCombs, 1998; McCombs & Whisler, 1997) and the National Research Council (Bransford, Brown, & Cocking, 2000).

### Revolutionary Principles for Revolutionary Results

Underlying the radical changes in curriculum and instruction are principles that are keys to new and effective educational designs. While the forms that new educational designs take will vary in appearance, it seems likely to us that many principles underlying the forms will be similar.

We believe that, at the highest level, the mission of schools for the information age, in which constant learning is essential to success in life, is to produce self-directed and self-motivated learners. The designs for new schools will vary, but they will hinge on a new view of learning that is consonant with the information age. The principles to guide revolutionary school designs that Egol states explicitly or implicitly can be organized into two categories (see Table 1). First, there are the principles that outline a new view of learning. The second class of principles stems from the first and addresses system-level changes necessary to align with the new view of learning. In other words, when the principles of information-age learning are assumed, the organization of schools as a means to learning must also change in significant ways.

Several big ideas are evident in the *principles of learning* category. One of these ideas is customization (or personalization) over standardization, which is discussed by Reigeluth (1994, 1999). As consumers gravitate to the product lines and services tailored to their needs, it is not difficult to see how such a trend

**Table 1.** Principles of Information-Age Education.

Principles of Learning	Principles of School Organization
<ul style="list-style-type: none"> <li>• Learning should be self-directed</li> <li>• Learning should often be collaborative</li> <li>• Groups and organizations can learn</li> <li>• Learning should be personalized</li> <li>• Learning should be project-based</li> <li>• Learning is about mastery rather than exposure</li> <li>• Service learning has high relevance and motivational value</li> <li>• The tools of learning are critical competencies</li> </ul>	<ul style="list-style-type: none"> <li>• Time allocations must be changed</li> <li>• Organization of the learning environment must take advantage of diversity</li> <li>• Teachers should be lead learners and facilitators</li> <li>• Tall hierarchical bureaucracies should be replaced with flat democratic governance</li> <li>• Schools should be governed by users</li> <li>• Schools should be community learning hubs</li> <li>• Productivity must increase</li> </ul>

could benefit education. Indeed as choices for education proliferate and parents adopt a consumer mindset about education, personalized attention will be an expectation. Personalization is the logical extension of outcomes-based education. If learning rather than teaching is the primary distinction between industrial-age and information-age schools, targeted attention to each individual's learning needs is the only logical end.

The special education field has developed individualized education plans (IEPs) to comply with the Individuals with Disabilities Education Act (IDEA, 1994). Though the substance of these plans usually addresses specific interventions and modifications to be made by the classroom teacher, we believe the case conference, which is part of the formal process for formulating the plans, has much to offer those thinking about designing schools that emphasize personalization. In these case conferences, teachers, principals, specialists, students, and parents convene to discuss and design a learning plan that targets specific areas of need.

Implied in a personalized approach to education is a focus on mastery rather than coverage of content. When singular needs are the focus of learning plans, it only makes sense to spend time on topics, skills, and proficiencies that are not yet mastered. Since students learn at different rates, if achievement is really the goal, then the time for learning must vary (National

Education Commission on Time and Learning, 1994). A mastery-based curriculum approach is itself a motivational design, as learners are helped to overcome real learning challenges, rather than spending time on material they have already mastered or being forced to move on before mastering essential skills and knowledge.

Another big idea evident in the *principles of learning* category is that life-long learning raises the importance of certain skill sets (e.g., collaboration, self-guided learning, and of course learning to learn). The reality of life outside of schools is that people change careers several times during their work lives. Many jobs that today's kindergartners will hold have not yet been created or even conceived. The information-age is marked by geometric knowledge expansion, making it more and more difficult to agree about what facts, information, and knowledge must really be in everyone's possession. What is clear is that meaningful content must form the intellectual space for students as teachers (facilitators) assist them in grasping, developing, and honing their inquiry skills and problem-solving abilities—essentially Egol's new basics.

We now consider the second category of principles for revolutionary school design—*principles of school organization*. If personalization and learning to learn are key changes for our learning paradigm (and we agree that they are), schools will need to be redesigned and much of the structure of schools—or “grammar of schools” (Tyack & Cuban, 1995)—will need to be transformed if schools are to produce the kinds of citizens with requisite skills to succeed in the information-age society.

Two key resources need to be realigned in order to support the new learning paradigm. The first is time (National Education Commission on Time and Learning, 1994). Time should be apportioned flexibly for mastery to be maximized for each student. Time should be made flexible on a number of levels, from daily schedules (e.g., doing away with class periods) to yearly schedules (e.g., doing away with grade levels, and even the rigid, 180-day school calendar).

Another challenge to the current organization of schools is the allocation of personnel. As Egol suggests, the bloated bureaucracy of schools diverts resources from classroom learning. The roles of teachers are also impacted by the shift in the learning paradigm. They must change from transmitter of knowledge to facilitator of learning. Also, the “content” in which a teacher is certified should perhaps be Egol's “new basics” rather than traditional subject-matter content (an increasingly narrowly defined canon of knowledge that is becoming more difficult to justify for all students). We believe that this should be viewed as a positive general trend rather than a complete change in teaching role. There may continue to be some purposes that are served well by a pedagogy of transmission.

Egol leaves no doubt about his passion for school transformation. This passion gives the book an urgent tone that sometimes toys with hyperbole and the melodramatic. This can be excused as deserved enthusiasm for what his successful model augurs for American education. Egol's fervency has the weight of a successful example—an existence proof—to bolster the credibility of the transformation he proposes.

Egol is ebullient about the potential savings that would be realized by a scaled-up version of this educational revolution. While such savings may have large popular appeal in the present political climate, we feel that more important than his speculations about savings is Egol's advocacy for real changes in the paradigm of teaching and learning, which promises to greatly improve the effectiveness of schools by radically changing the use of time, talent, and technology (Schlechty, 1990). In other words, absent the savings, if the transformations that Egol urges were successful, they would be well worth the one-time investment of time, energy, and money to cover the transformation process.

It is also important to note that the CLC model is designed to serve secondary students. It would be interesting to know if Egol's design would need to change significantly to accommodate younger learners.

### **Mission Critical: The Transformation Process**

While Egol's book offers evidence that it is possible to challenge the structure or “grammar of school” (Tyack & Cuban, 1995) and to come out with a successful design, getting from the schools we have to the schools we want requires close attention to the transformation process—a process that can be painstaking but nonetheless critical to the eventual success of the new designs. It is to this process that we now turn our attention.

Egol should be commended for addressing the transformation process at all. Many analysts describe what changes they think should be made but give no guidance on how to help bring about those changes successfully. The transformation process is perhaps the most critical and most difficult aspect of fundamental (revolutionary) educational change, so it is important that Egol addresses it. He should also be commended for recommending actions to be taken by the full range of organizations and individuals involved in education: federal and state governments, school districts, teachers, colleges and universities, businesses, philanthropies, parents, and citizens. This represents truly systemic thinking as discussed by Banathy (1991), Checkland (1984), Capra (1982), and Ackoff (1981).

At the core of Egol's recommendations is getting school districts to: (1) conduct a visioning process with all stakeholders, (2) create prototype CLCs, and (3) offer free choice for enrollment in CLCs. However, Egol does

not offer much guidance for how to accomplish these goals. This is unfortunate because, in our view, the transformation process is the most critical and most difficult issue in bringing about significant improvement in education. Fortunately, a growing number of researchers are developing knowledge about the systemic transformation process (see, e.g., Caine & Caine, 1997; Duffy, Rogerson, & Blick, 2000; Jenlink, Reigeluth, Carr, & Nelson, 1996, 1998; Reigeluth, 1993).

We have both been involved on a project to facilitate a systemic transformation process in the Metropolitan School District of Decatur Township in Indianapolis that began in January 2001 (see <http://www.indiana.edu/~syschang/decatour/index.html>). That transformation process is guided by the Guidance System for Transforming Education (GSTE) (Jenlink et al., 1996, 1998), which only provides guidance for the transformation process, not for the "design" or new model of education to be implemented—the nature of their new school system is to be determined by the stakeholders during the transformation process. Based on our work in Decatur and with other public schools, we agree with Egol that it is crucial to conduct a visioning process with all stakeholders.

In our experience the most important outcome of the transformation process is the changes in mindset or mental models (Senge et al., 2000) about education that result from the process—changes in mindset similar to those discussed by Egol (2003), McCombs and Whisler (1997), and Caine and Caine (1997). Even the very best of educational programs and methods will be misunderstood, misapplied, and even resisted without such changes in mindsets. Therefore, the transformation process should involve as many stakeholders as possible and involve them in a way that engages them in generative dialogue (Bohm, 1996) on what an ideal educational system would be like. We also have come to believe that the transformation process needs to be customizable to local conditions in each change effort. For example, the GSTE (Jenlink et al., 1998; Jenlink, Reigeluth, Carr, & Nelson, unpublished manuscript) contains specific guidelines and activities for stakeholders to redesign the basic process offered by the GSTE. Furthermore, we advocate that those involved in transformation efforts share their process and what they have learned about the transformation process with the wider educational research community. There is a great need to advance our knowledge in this area.

### Conclusion

Egol's book is provocative, stimulating, and enlightening. It helps us see that our public schools could be radically different than they are—that they could be transformed to dramatically improve their ability to

meet the needs of our students and communities in the information age, and quite possibly at lower cost. He provides insights into changes that should be made in what we teach and how we teach it, and he points to a "proof of concept" in the Alameda School District in California. He discusses design principles that are present in the Alameda CLC, and that provide a basis for transforming other schools. And he briefly addresses important elements in the transformation process for conducting the Education Revolution. While often emotionally charged and lacking in documentation of research support, we believe this is a compelling and insightful "must read" for all who are interested in improving education. □

### References

- Ackoff, R. L. (1981). *Creating the corporate future*. New York: John Wiley & Sons.
- Banathy, B. H. (1991). *Systems design of education: A journey to create the future*. Englewood Cliffs, NJ: Educational Technology Publications.
- Bohm, D. (1996). *On dialogue*. London: Routledge.
- Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). (2000). *How people learn*. Washington, DC: National Academy Press.
- Branson, R. K. (1987). Why the schools can't improve: The upper limit hypothesis. *Journal of Instructional Development*, 10(4), 15–26.
- Caine, R. N., & Caine, G. (1997). *Education on the edge of possibility*. Alexandria, VA: ASCD.
- Capra, F. (1982). *The turning point: Science, society, and the rising culture*. New York: Simon and Schuster.
- Checkland, P. (1984). *Systems thinking, systems practice* (Reprinted with corrections February 1984 ed.). Chichester, Sussex; New York: John Wiley.
- Costrell, R., & Peyser, J. (2004). Exploring the costs of accountability. *Education Next*, 22–29.
- Covington, M. V. (1996). The myth of intensification. *Educational Researcher*, 25(8), 24–27.
- Duffy, F. M., Rogerson, L. G., & Blick, C. (2000). *Redesigning America's schools: A systems approach to improvement*. Norwood, MA: Christopher-Gordon Publishers.
- Egol, M. (2003). *The education revolution: Spectacular learning at lower cost*. Tenafly, NJ: Wisdom Dynamics.
- Hess, F. M. (2004). *Common sense school reform*. New York: Palgrave Macmillan.
- Jenlink, P. M., Reigeluth, C. M., Carr, A. A., & Nelson, L. M. (1996). An expedition for change. *Tech Trends*, 21–30.
- Jenlink, P. M., Reigeluth, C. M., Carr, A. A., & Nelson, L. M. (1998). Guidelines for facilitating systemic change in school districts. *Systems Research and Behavioral Science*, 15(3), 217–233.
- Jenlink, P. M., Reigeluth, C. M., Carr, A. A., & Nelson, L. M. (unpublished manuscript). *Facilitating systemic change in school districts: A guidebook*. Bloomington, IN: The Systemic Change Agency.
- Lambert, N. M., & McCombs, B. (Eds.). (1998). *How students learn: Reforming schools through learner-centered*

- education. Washington, DC: American Psychological Association.
- McCall, M. S., Kingsbury, G. G., & Olson, A. (2004). *Individual growth and student success* (Technical Report). Lake Oswego, OR: Northwest Evaluation Association.
- McCombs, B., & Whisler, J. S. (1997). *The learner-centered classroom and school: Strategies for increasing student motivation and achievement*. San Francisco: Jossey-Bass Publishers.
- National Education Commission on Time and Learning. (1994). *Prisoners of time*. Washington, DC: United States Department of Education.
- Reigeluth, C. M. (1993). Principles of educational systems design. *International Journal of Educational Research*, 19(2), 117-131.
- Reigeluth, C. M. (1994). The imperative for systemic change. In C. M. Reigeluth & R. J. Garfinkle (Eds.), *Systemic change in education* (pp. 3-11). Englewood Cliffs, NJ: Educational Technology Publications.
- Reigeluth, C. M. (Ed.). (1999). *Instructional-design theories and models: A new paradigm of instructional theory* (Vol. II). Mahwah, NJ: Lawrence Erlbaum Associates.
- Robelen, E. W. (2004). School law's story: Read all about it. *Education Week*, 33(41), 1, 32-33.
- Schlechty, P. C. (1990). *Schools for the twenty-first century: Leadership imperatives for educational reform* (1st ed.). San Francisco: Jossey-Bass Publishers.
- Senge, P., Cambron-McCabe, N., Lucas, T., Smith, B., Dutton, J., & Kleiner, A. (2000). *Schools that learn*. New York: Doubleday/Currency.
- Tyack, D. B., & Cuban, L. (1995). *Tinkering toward utopia: A century of public school reform*. Cambridge, MA: Harvard University Press.
- U.S. Department of Labor. (1991). *What work requires of schools: A SCANS report for America 2000*. Washington DC: The Secretary's Commission on Achieving Necessary Skills.
- Duffy, F. M. (2003). *Courage, passion, and vision: A guide to leading systemic school improvement*. Lanham, MD: Scarecrow Education and AASA.
- Duffy, F. M. (2004). *Moving upward together: Creating strategic alignment to sustain systemic school improvement* (Vol. 1 in Leading Systemic School Improvement Series). Lanham, MD: Scarecrow Education.
- Duffy, F. M., Rogerson, L. G., & Blick, C. (2000). *Redesigning America's schools: A systems approach to improvement*. Norwood, MA: Christopher-Gordon.
- DuFour, R. (2002). The learning centered principal. *Educational Leadership*, 59(8), 12-15.
- Education Commission of the States. (1996). *Bending without breaking: Improving education through flexibility & choice*. Denver: Education Commission of the States.
- Egol, M. (2003). *The education revolution: Spectacular learning at lower cost*. Tenafly, NJ: Wisdom Dynamics.
- Fullan, M. (1993). *Change forces: Probing the depth of educational reform*. London; New York: Falmer Press.
- Fullan, M. (1999). *Change forces: The sequel*. London; Philadelphia, PA: Falmer Press.
- Hall, G. E., & Hord, S. M. (1987). *Change in schools: Facilitating the process*. Albany: SUNY Press.
- Hammer, M., & Champy, J. (2001). *Reengineering the corporation: A manifesto for business revolution*. New York: HarperBusiness.
- Hutchins, C. L. (1996). *Systemic thinking: Solving complex problems*. Aurora, CO: Professional Development Systems.
- Jenlink, P. M. (1995). *Systemic change: Touchstones for the future school*. Arlington Heights, IL: IRI/Skylight.
- Lambert, N. M., & McCombs, B. (Eds.). (1998). *How students learn: Reforming schools through learner-centered education*. Washington, DC: APA.
- Lieberman, A. (Ed.). (1995). *The work of restructuring schools: Building from the ground up*. New York: Teachers College Press.
- McCombs, B., & Whisler, J. S. (1997). *The learner-centered classroom and school: Strategies for increasing student motivation and achievement*. San Francisco: Jossey-Bass.
- Mirel, J. (2001). *The evolution of the New American Schools: From revolution to mainstream*. Washington, DC: Thomas B. Fordham Foundation.
- Nadler, G. (1981). *The planning and design approach*. New York: Wiley.
- Naisbitt, J., & Aburdene, P. (1985). *Re-inventing the corporation: Transforming your job and your company for the new information society*. New York: Warner Books.
- National Research Council. (2000). *How people learn: Brain, mind, experience, and school* (expanded edition). Washington, DC: National Academy Press.
- Parkhurst, H. (1924). *Education on the Dalton plan* (4th ed.). London: G. Bell and Sons.
- Pasmore, W. A. (1988). *Designing effective organizations: The sociotechnical systems perspective*. New York: Wiley.
- Reigeluth, C. M. (Ed.). (1999). *Instructional-design theories and models: A new paradigm of instructional theory* (Vol. II). Mahwah, NJ: Lawrence Erlbaum Associates.
- Reigeluth, C. M., Banathy, B. H., & Olson, J. R. (Eds.). (1993). *Comprehensive systems design: A new*

## Resources for Educational Transformation

### Books

- Ackoff, R. L. (1981). *Creating the corporate future*. New York: John Wiley & Sons.
- Banathy, B. H. (1991). *Systems design of education: A journey to create the future*. Englewood Cliffs, NJ: Educational Technology Publications.
- Banathy, B. H. (1996). *Designing social systems in a changing world*. New York: Plenum Press.
- Caine, R. N., & Caine, G. (1997). *Education on the edge of possibility*. Alexandria, VA: ASCD.
- Capra, F. (1982). *The turning point: Science, society, and the rising culture*. New York: Simon and Schuster.
- Chugach School District. (2002). *A guide to reinventing schools*. Anchorage, AK: Chugach School District.
- Comer, J. P., Ben-Avie, M., Haynes, N. M., & Joyner, E. T. (1999). *Child by child: The Comer process for change in education*. New York: Teachers College Press.
- Duffy, F. M. (2002). *Step-up-to-excellence: An innovative approach to managing and rewarding performance in school systems*. Lanham, MD: Scarecrow Education.

- educational technology. Berlin; New York: Springer-Verlag.
- Reigeluth, C. M., & Garfinkle, R. J. (Eds.). (1994). *Systemic change in education*. Englewood Cliffs, NJ: Educational Technology Publications.
- Sarason, S. B. (1990). *The predictable failure of educational reform: Can we change course before it's too late?* (1st ed.). San Francisco: Jossey-Bass.
- Schlechty, P. C. (1990). *Schools for the twenty-first century: Leadership imperatives for educational reform* (1st ed.). San Francisco: Jossey-Bass.
- Schlechty, P. C. (2001). *Shaking up the school house*. San Francisco: Jossey-Bass.
- Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization* (1st ed.). New York: Doubleday.
- Senge, P. M. (2000). *Schools that learn: A fifth discipline fieldbook for educators, parents, and everyone who cares about education* (1st ed.). New York: Doubleday.
- Tyack, D. B., & Cuban, L. (1995). *Tinkering toward utopia: A century of public school reform*. Cambridge, MA: Harvard University Press.
- Wheatley, M. J. (1999). *Leadership and the new science: Discovering order in a chaotic world*. San Francisco: Berrett-Koehler Publishers.

#### Articles

- Banathy, B. H. (1994). The three imperatives of the design of educational systems: Transcend-envison-transform. *Educational Horizons*, 72(4), 186-195.
- Betts, F. (1992). How systems thinking applies to education. *Educational Leadership*, 50(3), 38-41.
- Branson, R. K. (1987). Why the schools can't improve: The upper limit hypothesis. *Journal of Instructional Development*, 10(4), 15-26.
- Carr, A. A., & Reigeluth, C. M. (1993). Community participation in systemic restructuring: Member-selection procedures. *Educational Technology*, 33(7), 36-46.
- Covington, M. V. (1996). The myth of intensification. *Educational Researcher*, 25(8), 24-27.
- Cuban, L. (1990). Reforming again, again, and again. *Educational Researcher*, 19(1), 3-13.
- Darling-Hammond, L. (1990). Achieving our goals: Superficial or structural reforms? *Phi Delta Kappan*, 72(4), 286-295.
- Ehrmann, S. C. (2000). Technology and educational revolution: Ending the cycle of failure. *Liberal Education*, 40-49.
- Hatch, T. (2000). What does it take to break the mold? Rhetoric and reality in New American Schools. *Teachers College Record*, 102(3), p. 561.
- Hawley, C. (1997). Systemic change in education: A road map. *Educational Technology*, 37(6), 57-64.
- Isaacson, N., & Bamburg, J. (1992). Can schools become learning organizations? *Educational Leadership*, 50(3), 42-44.
- Jenlink, P. M., Reigeluth, C. M., Carr, A. A., & Nelson, L. M. (1998). Guidelines for facilitating systemic change in school districts. *Systems Research and Behavioral Science*, 15(3), 217-233.
- Khan, B., & Reigeluth, C. M. (1993). Educational systems design (ESD): An integrated, disciplined inquiry in

- schools of education. *Educational Technology*, 33(6), 36-40.
- Lee, I. S. (1995). Exploration of the significance of values in the design of educational systems. *Systems Practice*, 8(3), 263-276.
- Lee, I. S., & Reigeluth, C. M. (1994). Empowering teachers for new roles in a new educational system. *Educational Technology*, 34(1), 67-72.
- Lee, L. F. (2000). The Dalton Plan and the loyal, capable, intelligent citizen. *History of Education*, 29(2), 129-138.
- Mohr, N., & Dichter, A. (2001). Building a learning organization. *Phi Delta Kappan*, 82(11), 744-747.
- Reigeluth, C. M. (1993). Principles of educational systems design. *International Journal of Educational Research*, 19(2), 117-131.
- Reigeluth, C. M. (1994). The imperative for systemic change. *Educational Technology*, 32(11), 9-13.
- Reigeluth, C. M. (1995). A conversation on guidelines for the process of facilitating systemic change in education. *Systems Practice*, 8(3), 315-328.
- Reigeluth, C. M. (1999). Visioning public education in America. *Educational Technology*, 39(5), 50-55.
- Reigeluth, C. M., & Garfinkle, R. J. (1992). Envisioning a new system of education. *Educational Technology*, 32(11), 17-23.
- Smith, M. S., & O'Day, J. (1990). Systemic school reform. In S. Fuhrman & B. Malen (Eds.), *The politics of curriculum and testing* (pp. 233-267). Philadelphia: Falmer Press.
- Squire, K. D., & Reigeluth, C. M. (2000). The many faces of systemic change. *Educational Horizons*, 78(3), 145-154.

#### Reports

- National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: U.S. Government Printing Office.
- National Education Commission on Time and Learning. (1994). *Prisoners of time*. Washington, DC: United States Department of Education.

#### Websites

- Chaos and Complexity Theory SIG, American Educational Research Association, at <http://www.ccaerasig.com/>
- Division of Systemic Change, Association for Educational Communications and Technology, at <http://www.aect-members.org/change/>
- International Society for the System Sciences, at <http://www.iss.org/homepage.html>
- International Systems Institute, at <http://www.isiconversations.org/>
- Journey Toward Excellence: A Systemic Change Effort in the Metropolitan School District of Decatur Township, at <http://www.indiana.edu/~syschang/decatour/index.html>
- Learning Federation, at <http://www.thelearningfederation.org/>
- Learning First Alliance: Strengthening Public Schools for Every Child, at <http://www.learningfirst.org/publications/districts/>
- Network for Creative Change, at <http://www.chebucto.ns.ca/CommunitySupport/NCC/NCCHPAGE.html>
- REL Network, at <http://www.relnetwork.org/news/news90.html>