The AECT FutureMinds Initiative: Transforming America's School Systems

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This article opens by discussing what paradigm change is and why it is needed. Then it describes the new AECT initiative, "FutureMinds: Transforming America's School Systems," beginning with its purpose (to help state departments of education to facilitate paradigm change in school districts), the fundamental ideas underlying the initiative (e.g., mindset change, invention process, broad stakeholder ownership, consensus-building process, and participatory leadership), and the strategy by which the FutureMinds Initiative operates.

Introduction

Educational reforms increased dramatically during the 1960s, in response largely to Sputnik. Educational reforms redoubled in urgency with the "Nation at Risk" report in the 1980s and again with "No Child Left Behind" in the 2000s. Educational reforms have variously focused on curriculum changes, consolidation, open classrooms, mastery learning, decentralization, shared decision-making, legislative mandates and controls, high expectations, integrated thematic instruction, professional development, technology integration, and standards with high-stakes accountability. Through all these waves of reforms, the educational system has remained resilient, and costs have

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Paradigm Change in Public Education

This is the first in a four-part series of articles on paradigm change in public school districts. This first article describes the *FutureMinds Initiative*, a national initiative undertaken by the Association for Educational Communications and Technology to help state education agencies (SEAs) build the capacity to facilitate paradigm change in their school districts. The second article describes the *School System Transformation Protocol*, a detailed set of research-based guidelines to help the SEA facilitators guide their districts' paradigm change efforts. The third article describes fundamental features of the *learner-centered paradigm* of education, a paradigm that is designed for learning rather than sorting students, as the current factory model of schools does. The fourth article describes *learning management systems*, powerful tools that make the learner-centered paradigm more effective, efficient, and engaging.

increased dramatically, while student learning has remained disappointing. Why don't any reforms make a significant improvement in educational performance, and why hasn't spending more money been the answer?

During these decades, the United States has changed dramatically, as it has evolved from the Industrial Age to the Information Age. During this time educational needs have changed greatly, as have the family and societal situations with which the educational system must cope (Banathy, 1991; Bell, 1973; Reigeluth, 1994; Toffler, 1980). As systems thinkers know well, when a system's "environment" changes dramatically, the system must undergo paradigm change to survive (Ackoff, 1981; Banathy, 1996; Capra, 1982; Checkland, 1984; Senge, 2000). So what does "paradigm change" mean, and how could that play out in education?

One of the few things that educators, parents, and other stakeholders agree on is that students learn at different rates. Yet our current paradigm of education teaches a fixed amount of content in a fixed amount of time and in a fixed way. By holding time constant for all students, we force achievement to vary, and we use norm-based grading to measure that variance. When we take a close look at this paradigm, we see that it was not designed for learning! It was designed for sorting students (Reigeluth, 1994). And that met the needs of the Industrial Age, when (a) manual labor was the predominant form of labor, (b) we did not need to educate many people to high levels, (c) we could not afford to educate many to high levels, and (d) few would be content to work on the assembly lines if we educated them all to high levels.

Now that knowledge work has replaced manual labor as the predominant paradigm of work, and information technologies have made our world far more complex for everyone, we find that we need to educate far more students to far higher levels of education. In

short, we need a paradigm of education that is focused on learning rather than sorting. So, rather than holding time constant, which forces achievement to vary, we need a paradigm that holds achievement constant—at mastery of each standard—which means we must not force a student to move on before attaining the standard, and we must allow each student to move on to the next standard as soon as it is attained.

To have a paradigm that is learning-focused rather than sorting-focused, it must be attainment-based rather than time-based and customized rather than standardized ("one size fits all"). There must be fundamental changes in the rules, roles, and relationships that make up the current educational paradigm, and fundamental changes in the use of time, talent, and technology (Schlechty, 1990, 2005). For example, the learning-focused paradigm requires dramatic changes in the roles of teachers, students, administrators, parents, other community members, and even technology. Technology integration (integrating technology into what is already going on in classrooms) must be replaced by technology transformation (using technology to transform what goes on in classrooms) (Reigeluth & Joseph, 2002). Piecemeal reforms can never change the paradigm of education, and this is why they have continually failed to meet our educational needs in the Information Age.

Then, is paradigm change totally new? Actually, there has been one—and only one—time that the predominant paradigm of education changed in the U.S. During the Agrarian Age, the one-room schoolhouse was the predominant paradigm of education. During the Industrial Age, the current factory model of schools replaced it as the predominant paradigm, though of course some one-room schoolhouses remain in agrarian communities today. Now as the Industrial Age has given way to the Information Age in the U.S., we should expect to find that the industrial paradigm of education is inadequate to meet our new educational needs. We must transform, not reform, our public education systems (Banathy, 1991; Darling-Hammond, 1990; Duffy, 2003; Fullan, 1993; Reigeluth, 1994; Senge, 2000).

In fact, some educators have tried to change to the information-age paradigm of education. These efforts, like the Saturn School of Tomorrow in St. Paul, Minnesota (Bennett & King, 1991)—often called "model schools"—have usually overcome great odds to establish a learning-focused, attainment-based paradigm. But that paradigm was, of course, incompatible with the paradigm of its school district, which then exerted powerful forces to change it back. These failed school-based transformation efforts provide ample evidence that paradigm change requires changes on the district and even state level. This is far more complex and difficult than piecemeal reforms, but it offers the only effective way to dramatically improve educational performance—without increasing costs (Egol, 2003). The FutureMinds

Initiative *(www.futureminds.us)*, sponsored by the Association for Educational Communications and Technology, was designed to meet these requirements.

Goals of the FutureMinds Initiative

The purpose of the FutureMinds Initiative is to provide unequivocal and substantial national-level leadership to assist State Education Agencies (SEAs) in building the internal capacity to help Local Education Agencies (LEAs) create and sustain transformational change in their schools from a time-based, standardized paradigm to an attainment-based, customized paradigm that will provide significant improvement in meeting students' educational needs and the needs of their communities.

Specifically, FutureMinds will furnish professional direction, guidance, and follow-up support to help SEAs (1) recognize the need for paradigm change, (2) decide to promote paradigm change in its LEAs, (3) develop support from key power groups in the state for district-wide paradigm change, (4) devote significant funding to support the transformation process, (5) develop the internal capacity to help LEAs engage in such change, (6) initiate efforts to foster such change, (7) develop and implement mechanisms to improve and sustain those efforts, and (8) disseminate information about those efforts.

FutureMinds advances and disseminates knowledge about how to best help SEAs accomplish these goals.

Fundamentals of the FutureMinds Initiative

There are ten fundamental principals upon which the FutureMinds Initiative is based:

1. Paradigm change. The FutureMinds Initiative is founded on the understanding that there is a need to change the paradigm of public education—that the factory model of schools is obsolete. For the paradigm of public education to change, three paradigm changes must occur in parallel within the system (Duffy, 2002, 2003):

- *Paradigm shift 1:* The primary work processes—teaching and learning—must be transformed to a paradigm that is customized to learners' individual needs and is focused on attainment of proficiencies (Reigeluth, 1994), and the supporting work processes must be transformed to best support the primary work processes. In addition, continuous improvement is needed as soon as the new paradigm is implemented. Duffy refers to this as *Path 1: transform the system's core and supporting work processes*.
- *Paradigm shift 2:* The school system's "social infrastructure" (e.g., organization culture, communication practices, job descriptions, reward systems, and so forth) must be transformed from a command-and-control organization design to a participatory organization design. Duffy refers to

this as *Path 2: transform the system's internal social infrastructure*.

- Paradigm shift 3: The relationship between the school system and its systemic environment must be transformed from an isolative and reactive stance by the school system to a collaborative and proactive stance. Duffy refers to this as *Path 3: transform the system's relationship with its external environment*.

These paradigm shifts require switching from a piecemeal approach for educational change to a systemic transformational approach.

2. The district as the unit of change. If paradigm change only happens in one part of a school district (e.g., one school), that part becomes incompatible with the rest of the system, which then exerts powerful forces to change it back. Therefore, paradigm change must view the whole school district as the unit of change.

3. Mindset change. A different paradigm of education requires an entirely different mental model or mindset about education by all those involved with the system (its stakeholders), or else they will resist the change and be unable to perform the new roles required by the new paradigm. Therefore, the paradigm change process must place top priority on helping all stakeholders to evolve their mindsets about education.

4. Invention process. The information-age paradigm of education is at the "Wright brothers" stage of development. Pieces of the new paradigm have been developed, but we still need to figure out how to put all the pieces together to work most effectively and efficiently. Furthermore, we expect aspects of the new paradigm to differ from one community to another. For both these reasons, it will not work to try to implement a "comprehensive school design" developed by outsiders of a community. Instead, the new paradigm must be invented or designed by the school district. Only after a variety of designs have proven effective will it be possible for the paradigm change process to become an adaptation process. Also, the invention process is a powerful tool for helping stakeholders to evolve their mindsets about education.

5. Broad stakeholder ownership. Because mindset change is so important to successful paradigm change, stakeholders must be involved in the paradigm change process, for it is only through participation that mindsets evolve. Furthermore, diverse perspectives enhance the creativity, and effectiveness of the invention process. But it is wise to go beyond involvement, to ownership of the change process, for that engenders true commitment and greatly reduces resistance to the new paradigm and enhances sustainability. Also, the broader the ownership, the better the results (though the more time it takes to design the new paradigm).

6. Consensus-building process. Stakeholders have different values about, and views of, what is important in education. Empowering stakeholders can generate discord and increase divisiveness unless a consensus-building process is used, along with a consensus-sustaining process.

7. Participatory leadership. Stakeholder ownership and the consensus-building style of decision making both require a different paradigm of leadership from the common supervisory or "command-and-control" paradigm. They require a paradigm that empowers all stakeholders to be leaders, supports them in their work, and provides professional development whenever needed.

8. Experienced outside facilitator. The journey of paradigm change is a treacherous one, and stakeholders typically have a long history of disagreements, factions, animosities, rivalries, and such. Therefore, it is essential to have a facilitator who is experienced in the systemic transformation process and has experience implementing the principles listed above. Furthermore, that facilitator must be someone viewed as neutral and impartial by all stakeholder groups. And that person must be available to facilitate all meetings in the school district until an internal capacity can be developed to assume increasing amounts of that role.

9. Time-intensive process. Mindset change takes time, and the more mindsets to be changed, the more time that is needed. This is because mindsets change primarily through exposure to new ideas and plentiful small-group discussion. Unless individuals' time can be bought or otherwise freed up, the transformation process will take many years and be less likely to succeed. This makes external funding crucial.

10. Capacity building. Empowerment of stakeholders requires building their capacity to lead the paradigm change process and to build participatory leadership skills. Such capacity includes Senge's (Senge, 1990) five disciplines of a learning organization (systems thinking, team building, personal mastery, vision, and mental models), as well as systems design, consensus-based decision making, continuous improvement, sustainability, and much more.

Strategy for the FutureMinds Initiative

We recognize that a school district must be the unit of change, not just an individual school. The history of educational reform is littered with useful school-level changes that were incompatible with the rest of the school district and consequently were gradually forced to revert back to the Industrial-Age paradigm. Transformation must occur on the district level and in all schools in the same feeder system* (all elementary and

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*We recognize that some school systems are not organized using feeder systems. Also, we recognize that in some school districts the entire instructional program may be limited to the p–6, p–8, or 9–12 grades (e.g., in Connecticut they have school

middle schools that feed into a single high school) for paradigm change to endure.

We further recognize that school districts need support for paradigm change to be successful. They need both expertise and money. These resources can both be provided by SEAs. Therefore, the FutureMinds strategy is to work with two SEAs that are at a high level of readiness for paradigm change, to build their capacity to support school districts in paradigm change. FutureMinds experts will train and coach SEA personnel who work with the districts and will provide strategic guidance for the paradigm change process, along with the instructional designs and technologies that are adopted. The strategic guidance is based on the School System Transformation (SST) Protocol, which has been under development by Charles Reigeluth and Francis Duffy for over 10 years and is being extensively field tested and improved in the Indianapolis Metropolitan School District of Decatur Township. We will also help the SEAs and school districts approach foundations for additional support as each project matures.

To accomplish this strategy, the following actions are envisioned:

1. Select two states (initially) that are at a high level of readiness for paradigm change.
2. Visit each state to build ownership in the initiative among all key leaders at the state level related to education.
   a. Reach consensus with the SEA, governor's office, state board of education, state teachers' association, and other key state leaders on the goals of the project.
3. Reach consensus with each SEA on:
   a. organizational changes to be made in the SEA for its unit to support district-wide paradigm change;
   b. initial expectations for the number of school districts to participate in each of the first five years of the project;
   c. the number, role, and qualifications of SEA employees to be devoted to the project in the first budget cycle, plus expectations for subsequent years;
   d. the activities to be done by the SEA and by AECT FutureMinds experts (including training of SEA employees to be district paradigm change facilitators, selection of school districts, and facilitation of the district-level transformation process), including timelines, for the first budget cycle, plus expectations for subsequent years;

   e. other state organizations that will be involved in the project (such as the state teachers associations, state administrators and school boards associations, state legislature, state chamber of commerce or business roundtable, accreditation agency, and so forth), along with their specific roles, including foundations that might supplement SEA funds to support school district transformation activities;
   f. the SEA budget to support each school district during the first budget cycle, plus expectations for subsequent years;
   g. the number, roles, and FTEs of AECT FutureMinds experts to be devoted to the project during the first budget cycle, plus expectations for subsequent years; and
   h. the budget for AECT FutureMinds' involvement in the project during the first budget cycle, plus expectations for subsequent years.
4. Carry out the project.
   a. Agreed-on organizational changes will be made to each SEA, with appropriate budget allocation to each state's FutureMinds Initiative.
   b. The agreed-on number of SEA employees and/or new hires will be trained at the AECT international headquarters.
   c. The SEA facilitators will select and begin working with the agreed-on number of school districts that are at the highest levels of readiness, using the SST Protocol with coaching from the AECT FutureMinds experts.

Conclusion

It has been well demonstrated that piecemeal reforms are not effective in meeting the educational challenges we face today in the Information Age. There is clear need for transformation to an information-age paradigm of education that is focused on learning by offering education that is attainment-based rather than time-based, and customized rather than standardized. This requires fundamentally different roles for students, teachers, administrators, parents, and other community members. It also requires a much more central role for educational technology. Such a fundamental paradigm change requires a very different approach to educational change—one founded in the district as the unit of change, mindset change, invention, broad stakeholder ownership, consensus building, participatory leadership, experienced outside facilitation, time for participation, and capacity building.

Based on these fundamental principles, the FutureMinds process entails experts training and coaching SEA personnel to facilitate district-wide paradigm change efforts using the SST protocol, which has a long history of development, improvement, and validation in the Indianapolis Metropolitan School

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* (cont.) districts that are for the elementary grades only and in California they have high school districts). In such districts, change leaders would create clusters of schools, and each cluster would contain the entire instructional program for that district.

District of Decatur Township. The cost of guidance from the AECT FutureMinds Initiative is minuscule compared with the total expenditures states typically spend on school improvement, and it results in building capacity within a SEA to continue facilitating district transformation beyond the term of the AECT FutureMinds involvement. Can you imagine a better expenditure of public monies for education? □

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Q & A with Ed Tech Leaders

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Interview with Allan Collins

Cynthia Kleyn Kennedy
Michael F. Shaughnessy

In this interview, **Allan Collins** shares his research and ideas about the field and his contributions to the field. He discusses situated learning, the issue of epistemic games, and situated learning environments. He hypothesizes about the future and discusses influences and mentors.

1.   What are you currently writing or involved with?

I have just completed a book with Rich Halverson at the University of Wisconsin, which is tentatively

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*Allan Collins is Professor Emeritus of Education and Social Policy at Northwestern University. He is a member of the National Academy of Education, a fellow of the American Association for Artificial Intelligence, and served as a founding editor of the journal **Cognitive Science** and as first chair of the Cognitive Science Society. He has studied teaching and learning for over 30 years and written extensively on related topics. He is best known in psychology for his work on how people answer questions, in artificial intelligence for his work on reasoning and intelligent tutoring systems, and in education for his work on situated learning, design research, inquiry teaching, and cognitive apprenticeship. From 1991 to 1994 he was Co-Director of the US Department of Education's Center for Technology in Education. Recently he was chosen by French psychologists as one of 30 living scholars who have had the most impact on the field of psychology.*