AECT and Divisions Speak on Systemic Change

AECT and Systemic Change

T. Weston Miller

> For the past thirty years [educators] have been trying to up the ante in getting the latest innovations and policies into place. We started naively in the 1960s pouring scads of money into large-scale national curriculum efforts, open plan schools, individualized instruction and the like. … We have never really recovered from the profound disappointment experienced when our expectations turned out to be so far removed from the realities of implementation.   (Fullan, 1993, p.1)

Like many who enter the teaching profession, AECT members want to make a difference … in the lives of others, in society, in the world. Providing leadership in systemic educational change is a role we — both as individuals and, more importantly, collectively — can and should undertake. However, it is a formidable challenge to apply an ISD systems approach and couple that with systems thinking that encompasses both a wider view of the interlocking systems that have an impact on what we do and an understanding of the systems dynamics that enhance our ability to foresee the "unanticipated consequences" of actions.

Michael Fullan (1993) noted: "The school is not now a learning organization. Irregular waves of change, episodic projects, fragmentation of effort, and grinding overload is the lot of most schools." (p. 42). Too often educational changes/innovations still are instituted in isolation (a course, a classroom, a school), failing to take into account the relationships between the part being changed and the larger system in which the innovation is being instituted. Instructional Technologists can have an impact on this through our ability to work collaboratively and taking a wider systems view.

> By working together differently the goal is to produce quality ideas and practices on an ongoing basis, and to inspire collective effort to the extent that it becomes possible to achieve breakthroughs never before experienced. The best system produces a culture in which it becomes easier to accomplish more by moving beyond dependence

> on the heroic or martyr-like efforts of a few (which in any case does not produce sustainable reform).   (Fullan, 2004, p. 6)

Education and change are both journeys, not necessarily destinations, and we can choose to be passengers or drivers. Which will you be? If you want to be a driver, this special issue should be very helpful to you.

The Design & Development Division and Systemic Change

M.J. Bishop and Alison A. Carr-Chellman

> Learning more about systems thinking can help all Design and Development members to understand:

- the external relationships between an instructional system and the larger system that houses it, for those relationships influence the success of design activities

- the internal relationships among design processes, for they enhance the success of resultant products

- the causal dynamics and links between design processes, interventions , products and the larger context

- the importance of engaging stakeholders and users in the creation of their own systems of learning, and also engaging in more participatory and developmental forms of leadership to ultimately enhance the adoption rates of designed innovations

Systems thinking and change are what D&D members do. The nature of system elements can really only be understood by looking at how they function in relation to the whole and to one another. As we work through the design process, systems thinking gives us the tools we need to understand the context, our influence on that context and the influence of that context on our instructional system. We also come to see the interconnections and interdependencies between parts and recognize that changes in one part will necessitate changes in other parts as well.

We see that the instructional systems we design are relatively "closed" subsystems of the larger educational system in which they function, and we recognize that in order for our interventions to have the intended results we must help bring about changes in the larger systemic environment (Banathy & Jenlink, 2004). Nonetheless,

many instructional designers feel daunted by the bigger task of systemic change. We can contribute to the systemic change movement, however, by developing a deeper understanding of the larger social systems of which we are part and designing from that broader perspective. In addition, we can identify and offer up specific skills we have as designers that are needed to bring about broad systemic change and begin contributing more effectively toward the design of new systems of education.

This special issue is an opportunity for D&D members to learn more about systemic thinking and systemic change as a step toward more effective practice.

The Distance Learning Division and Systemic Change

Vance Durrington and Richard West

In developing this short piece, one of the authors recalled taking a course on systems analysis and design as an undergraduate that introduced him to a systems approach for addressing projects. Unfortunately, the course was not offered by the College of Education, and he never encountered an education course that took a systems perspective until graduate school. Educators too often take a reactionary approach and then determine how to make that reaction work in the current system. This is equivalent to designing the system without giving proper attention to the crucial phase of analysis, or even worse, to letting the system design itself without an objective-driven vision.

With the increasing role of distance learning in K-12 and higher education, the need for systemic thinking about how to implement distance learning (DL) effectively is critical. In examining a distance learning system, it is important to keep in mind that distance learning is a subsystem of the associated educational institution, and the mission of the institution should drive the design of the distance learning system. With that in mind, there are a number of areas where systemic thinking and change will lead to proper analysis and design of a distance learning system, including the following:

- Systems thinking can help DL administrators identify the standards that should qualify credible DL programs/offerings, as well as bridge the current chasm between DL and educational accreditation.

- Systems thinking can help the DL community identify and understand the needs of learners in order to develop DL programs that meet their needs and enhance their opportunities for success.

As distance learning technologies continue to evolve, we will need to "pick up our feet" as distance educators and instructional designers so that our DL designs can keep pace with current trends. Keeping a systems perspective will help us stay anchored to what our design and instructional goals should be in order to best capitalize on the exciting opportunities growing increasingly more available in distance education. This special issue should be very useful to DL members.

The International Division & Systemic Thinking

Amy Bradshaw and Sung Pil Kang

The International Division seeks to "facilitate communication among educational technology professionals and students worldwide" and to promote "interactions that transcend international boundaries and cultural lines by mentoring and fostering educational endeavors, and coordinating communication with sister associations around the world." Adopting systemic thinking can assist these efforts — particularly if we understand and consider the underlying framework, systems theory — because it can help us identify important interdependencies, be more effective in collaboration and consensus-building and broaden our abilities to develop beneficial and appropriate solutions.

Change interrupts the flow of a system and has unintended consequences — positive, neutral and negative. Unsatisfactory or harmful outcomes can result from failing to recognize important components within a system and the interdependence and interrelatedness of components. Also, beneficial aspects of a system can be lost as a consequence of the change. Systems theory and systemic thinking offer a guiding framework to reduce or avoid such problems, and are especially useful in efforts involving cross-cultural collaborations and development. A systemic change process provides general guidelines for identifying, considering and accommodating all the factors involved in a system undergoing change.

While searching for one-size-fits-all solutions can be tempting, systems theory's emphasis on interconnected relationships within individual contexts cautions us to resist formulaic and generalized solutions. The difference in implication from *imposing* change versus *facilitating* change is critical. *Facilitating* change indicates full participation by insiders. Systems theory's emphases on participatory leadership and decision-making, and input and feedback from stakeholders throughout the system, facilitate more meaningful consensus-building, as it provides mechanisms for seeking and valuing multiple perspectives, reflecting on ethical dimensions and developing solutions that are responsive to the needs, values and traditions of insiders.

Systems theory fits well with the International Division's core values of mutual respect and equal participation among all members and is useful in our efforts to share, apply or adapt knowledge and information from research and practice across cultural and national boundaries. We invite you to take advantage of this opportunity to learn more about systemic change and consider how drawing on it can help facilitate our division's efforts and interests.

The Management Division and Systemic Change

Ken Harmaning and Kyle Peck

The Management Division is an eclectic mix of professionals, including managers of media distribution and production, members who work in faculty development and curriculum development and K-12 library media specialists. With this diversity of membership, the focus of the division has become a search for tools that will assist in the developmental and decision-making processes in these diverse settings.

Systems thinking provides a set of tools that is useful to the members of our division — professionals in the trenches. Systems thinking helps these professionals understand the decision making processes in their workplaces and where to influence those processes with the least effort and disruption. It also helps them understand and anticipate the otherwise invisible dynamic forces that threaten success, and helps them attend to these forces and adapt accordingly. This stealth influence is only possible because of the models developed by systemic change proponents.

Projects consume much of our members' time and energy. Systems thinking provides the structure and analytical tools to develop, implement and evaluate not only the end product, but the incremental processes as well. Unlike many structures, systemic structures are flexible and adaptable as additional information and requirements impact design parameters. Systems thinking also helps define the end product so that the projects do not take on a life of their own and unnecessarily absorb large amounts of scarce resources, and systems thinking helps our members decide whether a project should even be attempted.

The Management Division contributes to the systemic change process by serving as a real-world test bed for developing concepts and models in systemic change. The diverse members of the division are able to apply and test the concepts and provide valuable feedback to researchers. Such situated investigation of applied systems thinking will be valuable to the members of the Management Division, providing insights and tools that can be directly applied in our important work. We believe that Management Division members will benefit greatly from exploring the topics in this special issue.

The Multimedia & Production Division and Systemic Change

Anthony Betrus and Omer Delialioglu

The Multimedia and Production Division is the center of a good deal of energy and effort right now, especially in the area of instructional simulations and games and advanced web development. As a newly formed division, our mission and the identity of our membership are still evolving. There is a new generation of academics that grew up playing games. They see the use of games in instruction as natural and necessary, an idea that is becoming more and more widespread as this game generation grows. Often the most exciting web productions include games or game-like elements.

Multimedia production is a complex process because there are many interdependent factors that need to be taken into account throughout all of the phases of production: analysis, design, development, implementation and evaluation. Systems thinking helps us to identify and understand those interdependencies. Whether we are talking about games and simulations or advanced web sites, most multimedia production processes have reached a level of complexity which can hardly be understood or managed effectively without systems thinking. Also, an integral part of all of our production efforts is to understand the broader contexts in which our products are being used. This is a prime example of systems thinking.

Furthermore, our products can add to systems thinking and systemic change efforts because our products have, in a very real sense, a transformative effect on instruction, making it truly learner centered. Therefore, we are creating the tools and products that are used to make systemic changes in instruction.

While some of our members are specialized in multimedia production or game development, most of them are members in other AECT divisions as well, and maintain a broader view, indeed a systemic view, about how our products fit into the bigger picture. In sum, systems thinking is important to a successful multimedia production process and it is central to the transformative effects our products have on instructional environments. We strongly encourage all our members to explore ways this issue can be useful to our endeavors.

The School Media & Technology Division and Systemic Change

Carol Brown and Sunnie Lee

Every year, I ask my graduate students who are teachers in K-12 schools, "In your school, what are the characteristics of both a successful and an unsuccessful collaborative project?" The overwhelming response always includes discussion of whether or not the projects are based on a shared vision or goals. These responses reflect that people work well together when their passions are aligned and their goals are congruent. Systems theory and systemic change offers us valuable guidance for building a common vision for everyone.

We media and technology specialists are considered key leaders in the schools. Our influence begins with each individual in the system and extends to administrative decision-makers who rely on our input. Therefore, we can play a powerful role in building a shared vision and fostering systemic change in our schools. To do so, systemic change

literature advises that we help stakeholders to identify the common values within a system. For example, one value is striking a balance between learning the content and learning to think and solve problems. What is really important and which direction should the scales tip? Teachers are constantly under stress to teach all the facts needed for standardized tests, while simultaneously developing young minds for higher-level thinking processes.

As media and technology specialists, we will be on the front line of any systemic change process, since we are responsible for the technology that can help our schools become learner centered. Working with others, we will be responsible for providing the resources to help our students pursue their unique learning goals. Furthermore, our advice will help administrators to choose technology that can store curricula and track and report on individual student achievement across the entire system.

By understanding the systemic change process for K-12 schools, media and technology specialists will be able to play a more effective role in building consensus that brings about the changes needed to best use media and technology to help all students succeed. We strongly encourage all Media & Technology Division members to read this special issue to learn more about how systemic change can help us help teachers and students to be more successful in learning.

The Research & Theory Division and Systemic Change

Steve Harmon and Sunnie Lee

The Research and Theory division has a different focus than other AECT divisions. Our interests cut across all areas of practice. For this reason, the potential impact of a systemic perspective in R&T can be profound. We see three broad areas in which a systemic perspective can benefit research in the field.

The first is for further development and adaptation of General Systems Theory (GST) for educational research. While there has been work in this area over the years, we've not seen the broad and concerted effort with general systems theory that we've seen with many other research frameworks. We might realize significant advances in the field if, for example, we devoted the same research efforts to GST as we do to, say, Constructivism. Although some research has been done with a GST perspective, more recent developments in systems theory, such as chaos and complexity theories, remain largely unexplored in our field.

The second area is continued and expanded work in implementing systemic change in education. If we had a generally accepted model of an educational system (a sort of unified field theory), and all educational research projects were developed with systems theory as a part of their theoretical framework, then it might be possible to integrate all research studies in a meaningful way.

The third area is helping researchers identify what kind of questions to investigate. GST can help researchers to recognize what areas of education need more inquiry and examination. It can also help researchers think about the nature of the methodology of educational research, and encourage us to conduct research within its systemic environment. For example, design-based research and formative research are two methodologies that are influenced by systems theory.

In an age where increasing specialization has become more than the norm and almost a mandate, the general systems theorist faces a somewhat daunting task. Even though faced with exponential change in the rate of increase of the body of scientific information, the general systems theorist must develop enough expertise in a wide variety of areas to achieve the synergies made possible by their fusion. We are winning some battles; GST can help us win the war.

The Teacher Education Division and Systemic Change

Julie Moore

As a teacher educator, I am often frustrated by the disconnect that frequently exists between teacher education and schools. Even within the university, our students have a fragmented experience that does little to truly prepare them for the complexity of teaching. I sometimes wonder if we can really impact teaching and learning at all.

Systemic change gives us a chance. Through systemic change, we can break through traditional barriers — both seen and unseen — to create new relationships and structures to impact teacher learning and development. Systemic change allows us to understand fully the relationships and factors (both internal and external) that impact our work. By understanding such factors, we can better understand how they influence one another, giving us insight into where we can have the most significant impact. More importantly, the systemic change process is one that values and includes the voice of all stakeholders, resulting in products and programs that are more likely to meet the needs of all involved.

Teacher educators are uniquely situated to be the catalyst for systemic change. Our understanding of research on best practices, our ability to design motivating and impactful learning environments and our knowledge of how to use new technologies to support new forms of teacher learning make us invaluable resources in systemic change efforts. More importantly, our unique placement in the education system gives us legitimate entrée into most of the important systems that impact teachers. Teacher educators can be the central hub bringing together people from a variety of systems (teachers, future teachers, policy makers, arts and sciences faculty and teacher educators) to work together. It is only by building such bridges that we will be able to envision new strategies and structures

to improve teacher education and thus, student learning. Project work, grant writing and implementation, and professional development schools all provide avenues in which we can utilize systemic change.

Systemic thinking and change give teacher educators a great avenue to truly impact teachers and teaching. I encourage you to read this issue with an eye towards how you can utilize systemic thinking and change to help you be that catalyst in your own setting.

The Training & Performance Division and Systemic Change

Cynthia Conn and Pamela Green

Systems theory plays a key role in the practice of training and performance consultants. Human Performance Technology (HPT) is rooted in general systems theory (Stolovitch & Keeps, 1999). It provides training and performance practitioners with a framework to examine or investigate the whole situation and look beyond the symptoms of an issue. HPT definitions, operational models and frameworks (Dick & Wager, 1995; International Society for Performance Improvement, n.d.; Stolovitch & Keeps, 1999) include a specific step that directly applies systems thinking by seeking performance-gap factors related to environment, skills and knowledge, and emotional/political issues.

When they are knowledgeable about systems thinking, training and performance practitioners can contribute to systemic change by working with management and clients to redefine projects so as to ensure that root causes and issues and systemic interrelationships are being addressed, and to assist with implementing goals and strategies for change. For systemic thinking to have an impact on training and performance, a systemic framework that encourages an open dialogue among teams must be developed. This open dialogue creates an environment for instructional designers, performance consultants, trainers and managers to reflect together on the collective learning and work strategies that they use to perform their jobs. In addition, an open dialogue creates the foundation for being able to discover and address the root causes of training and performance problems. Systems thinking promotes collaboration, and by participating in the resulting open dialogue, training and performance professionals can avoid the pitfalls of misunderstanding or misinformation.

Systems theory allows performance practitioners to facilitate discussions and propose alternatives to help ensure the successful implementation of projects. Keeping a systems perspective provides a firm foundation that can assist instructional designers, performance consultants, trainers and managers in capitalizing on unrealized resources. Given the connections between human performance technology and systems theory, training and performance practitioners should find the articles in this special edition useful and valuable.

Author Information and References for Section 1

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Foundations for Systemic Change

Societal Evolution and the Need for Systemic Change in Education

Jerrold E. Kemp

Society in the United States and in many other countries has moved from the industrial age into the information age. We are recognizing how new technologies affect transportation, communications, business, workplace operations and social changes that alter every aspect of our lives. The transformation to the Information age can be illustrated by a recent statement by a workplace employee:

> When I started working 20 years ago, to build a product there was a single operation for each worker. You only had to memorize the task and do it repeatedly. But today I do many operations at one time. For one thing, you have to think before randomly pushing buttons and pulling switches. My job has broadened to include equipment troubleshooting, debugging, and even simple computer programming, with responsibilities for quality that require taking the initiative in frequent decision-making and teamwork with other workers. We find our technologies now changing so fast that continued training is necessary to cope with new tasks as they arise.
>
> I know that behind these abilities are competencies in basic math, reading, writing and communicating clearly with other employees. I hope the schools will prepare their students for this new world better than I was prepared for it. [Adapted from Adler (1992).]

These changes place new needs on our educational systems. For students, they include the development of initiative, creativity and skills in critical thinking and problem-solving, mental and physical skills needed for productive work, using advanced technologies, engaging in group-processes and developing good habits for self-direction and personal growth.

Most people do not yet realize that the Industrial-age paradigm of being teacher-centered, with linear reasoning by students that requires rote memory and convergent thinking within a standardized educational format, is counter-productive for meeting many of the new educational needs. To accomplish information-age educational goals, major systemic changes are essential, in line with major changes occurring in other sectors as we