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COMMENTARY

Educating for the Bigger Picture

By Daniel Goleman and Peter Senge

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There appears to be widespread agreement that schools should not only produce graduates proficient in an agreed-upon set of thinking and learning skills (like those embedded within the Common Core State Standards), but also students who work well together and are self-motivating, responsible learners with the ability to contribute to healthy enterprises, families, and communities.

We propose that it is time to go a step further.

There are three major domains of difficulty—and opportunity—we face as we go through life: managing ourselves, building productive and satisfying relationships, and facing the complexity of the wider world. The first two areas fall under what the researcher Howard Gardner calls "intra-psychic" and "inter-personal" intelligences, which have been unpacked more thoroughly in models of emotional and social intelligence.

The pedagogic application of these life skills goes by the name social and emotional learning, or SEL. There are now hundreds of school-based programs in thousands of schools that teach aspects of SEL. The best cover a full spectrum of these life skills, are age-appropriate in a graduated progression, prepare teachers and school staff adequately, and involve families, among other best practices.

But we feel SEL offers only part of what students need to be well prepared for life. In today's world of work and global citizenship, young people also need to comprehend the complexity of the problems they will face.

Parallel to the development of SEL, for the past 20 years, innovative teachers have been working to introduce systems thinking into pre-K-12 schools to build a third intelligence—systems intelligence.

Systems thinking, which has been a hot topic in the business world for years, has been shown to increase student motivation by engaging learners in issues of genuine concern to them, like the

causes of conflict, whether among cliques in school or between warring nations. Systems education tools give teachers practical strategies for building the sort of deeper learning skills that the common-core standards emphasize.

In math and science, for example, systems-based pedagogy and curriculum encourage the intuitive understanding that is often lost when students learn only facts or technical manipulations without understanding the larger processes at work. We all know that memorizing the technical terms for the elements of a cell in biology is much less engaging than learning how a cell functions as it processes nutrients, expels waste, and maintains its integrity in the face of chemicals that threaten it. The same is true for manipulating equations in algebra or calculus without knowing how the real-life engineering or natural systems these equations describe actually operate.

Perhaps most important for today's overtaxed teachers, systems thinking is not one more subject to squeeze into already-overcrowded curricula. Instead, systems thinking tools help teachers do what they are already doing more effectively and efficiently.

Today, teachers integrate systems tools into the curriculum by focusing on the **Waters Foundation's 13 habits of a systems thinker**—a range of fundamental skills like "seeks to understand the big picture," "observes how elements within a system change over time, generates patterns and trends," and "changes perspectives to increase understanding."

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An example in the early-reading arena would be teachers asking students to do "behavior over time" charts to trace the evolving mood of a character in a story or the arc of a subject's growing courage through events in a biography.

This simple tool helps early readers interpret and share their understanding of a story and gives teachers a powerful basis for formative assessment. At the same time, children are learning how to think explicitly about change over time, a foundational skill for middle and high school math and science.

There are curricula that teach the necessary skills for social, emotional, and systems intelligences, but few that offer all three. Yet it is the combination of social, emotional, and systemic understanding that offers the fullest preparation of students for life's challenges.

Systems education offers the bridge from good SEL education to understanding more-complex subject matter. Likewise, social and emotional skills prepare students for moving from mere understanding to learning how to work together to actually solve complex problems. We find educational innovators starting to appreciate and develop these connections.

But further developments are needed to realize the potential at a larger scale.

We need to encourage educators and those who support them to develop school cultures truly focused on ongoing innovation and continuous improvement. Just as

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businesses have learned that rigid hierarchies discourage people from taking risks and leading change, so, too, can schools learn to balance accountability for results today with distributed, or collaborative, leadership for better results tomorrow.

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Further, this cannot happen without broad public understanding and engagement. School differs from business in being a public institution with diverse stakeholders, including parents and prospective employers, with significant input into shaping any agenda for change.

All of us, including educators, must think together about our true aims. What do our children and societies need for a healthy future? Better test scores are an indicator, not a solution. Without clear and thoughtful goals, our education system is adrift, and it becomes more difficult to motivate engaged learners and attract and retain talented teachers.

We believe understanding oneself, others, and the larger systems within which we all live offers a real step toward this much-needed consensus.

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