

## CHAPTER II

### Issues in Implementing the Changing Basic Core

In comparing the skill sets proposed by national studies and the current skill sets, certain themes recur, such as a broad core of basic skills, higher-level thinking skills, interpersonal skills, various meta-cognitive skills related to knowing how to learn, employability skills, and technology skills. Students will live and work in a global environment, and STEM education will need an international perspective. This expanded skill set should force educators to rethink how education is organized, delivered, and assessed.

The knowledge and skills needed in the 21st Century do not fit neatly into the current compartmentalized discipline system used in U.S. education. A significant number of the critical technologies' concepts crossed traditional disciplines; e.g., biotechnology, bioinformatics, and nanotechnology.<sup>59</sup> "Advances in medical technologies integrate biology with physics, mathematics, materials sciences, and software engineering. Innovation in the IT sector is built on research that spans a range of sciences, including solid-state physics, chemistry, mathematics, and language theory."<sup>60</sup> The 21<sup>st</sup> Century Renaissance learner does not label content into separate categories; he sees the bigger picture of integrated knowledge, which better allows for higher-level thinking, pattern recognition, creativity, and innovative problem-solving.

The 21st Century worker needs to understand multiple disciplines; for example, an engineer needs to understand human factors, marketing, financial planning, and entrepreneurship. The focus is on using knowledge and skills to solve real-life, complex problems. Reading, writing, math, and science are not ends in themselves—they are the building materials used along with thinking skills, global perspective, and technology skills to solve authentic problems. Rote learning and drills will retain an instructional role, but much more emphasis needs to shift to a problem-based learning approach.

Currently, few questions on college entrance exams or Illinois state assessments require cross-disciplinary, problem-solving skills. However, the *Illinois Learning Standards* has recognized the importance of these types of skills. In the standards, each content area has specific "Applications of Learning." The *Illinois Learning Standards* state, "Through Applications of Learning, students demonstrate and deepen their understanding of basic knowledge and skills. These applied learning skills cross academic disciplines and reinforce the important learning of the disciplines. The ability to use these skills will greatly influence students' success in schools, in the workplace and in the community."<sup>61</sup> The Applications of Learning for each content area are subcategorized as "solving problems", "communicating", "using technology", "working on teams", and "making connections". (See Appendix A for examples of the Applications in each subject area.) The Applications are part of the standards document, but there are no benchmarks or performance indicators associated with them. Also they are not subjected to rigorous assessment, although the Applications embody knowledge and skills faculty and employers say are critically needed.

## THE CHANGING ACADEMIC CORE

Lastly, it is not enough to graduate from high school with the basic core knowledge and skills of the day because that basic core will always be evolving. Being an informed citizen and effective employee requires continuous lifelong learning. Perhaps the most important core skills are knowing how to learn, how to find information, and how to process information. Chapter VI discusses in more depth the Illinois curriculum and graduation requirements.

### Chapter Summary

Keeping Illinois competitive requires rigorous P-12 curricula that prepare all students to be productive citizens and prepare a skilled pool of workers. The basic core for the 21st Century includes basic skills, higher-level thinking skills, interpersonal skills, various meta-cognitive skills related to knowing how to learn, employability skills, and technology skills.

Implementing this core impacts how education is organized, delivered, and assessed. For Illinois, the *Illinois Learning Standards*, including the section referred to as the “Applications of Learning,” aligns with the knowledge and skills needed for the 21st Century.

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