Chapter III
The KAR–P–E Model Revisited: An Updated Investigation for Differentiating Teaching and Learning with Technology in Higher Education

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ABSTRACT

Since 1996, the KAR-P-E model has served to differentiate teaching and learning of technology. It is offered here as an archetype for other institutions seeking to develop their own comprehensive technology program. Knowledge, application, research, practice, and evaluation (KAR-P-E) offer the necessary dichotomy among instructional technology programs for undergraduates, graduates, and doctoral candidates. Similar to other more well-known taxonomies, the KAR-P-E model is progressive and assumes mastery and competency at previous levels. Readers are exposed to the ISTE technology standards for teachers as well as how particular institutions implement the set of competencies in their individual programs of study. By establishing how technology skills are addressed in higher education, readers will be able to transfer the KAR-P-E model to new initiates at all levels of instructional technology education, business, and corporate as well as traditional education.

INTRODUCTION

The phenomenon of technology-based learning has dramatically changed the direction and delivery of education in the past decade. Pastore (2001) estimated that, by 1999, 1,500 colleges and universities were offering Web courses, with that number expected to double by 2005. The U. S. Department of Education found some 26,000 online courses with an estimated 100 new college courses going online every month (James & Voigt, 2001).
To meet the increasing demands for technology at all three levels, technology-based education programs have been implemented for pre-service (undergraduate) learners, in-service professionals (graduate) students, and post-graduate (doctoral) candidates. Technology courses across three levels beg questions in the minds of faculty and students alike as they move through their formal education agendas. Specifically:

- When it comes to technology skills and competencies, what can I expect to learn differently as a graduate or doctoral candidate than I did as a freshman?
- Is there a different set of skills and competencies appropriate for each of these levels?
- If I take undergraduate technology courses am I sufficiently prepared (i.e., competent) to use technology throughout an entire career?

**REVIEW OF THE LITERATURE**

**Standards and Instructional Technology Education**

The International Society for Technology in Education recognizes three distinct levels of personal technology development in higher education (ISTE, 2004). At the outset, technology foundations are suitable for all learners as they advance their own strategies for acquiring knowledge. At mid-level, skilled practitioners acquire the tools they need to exercise their chosen avocation. At the highest level, professionals seek the competencies necessary to share a lifetime of service and experience with peers and colleagues and thereby advance their profession.

Table 1 illustrates the emphasis placed by the ISTE on the various skills and competencies expected of educators. At the outset of the educator’s career, stress is laid on grasping technology operations and concepts and the importance of using technology for enhancing professional growth. Currently, 42 of the 50 states have adopted the ISTE technology standards for their professional staff. As more and more teachers prepare to take the reins of a classroom, the impetus on technology shifts to the learning environment and the surrounding social issues. First-year teachers are expected to have mastered the basics of technology, turning their attention to the curriculum and assessment.

The Technology for All Americans Project (TfAAP) was created by the International Technology Education Association (ITEA) through funding from the National Science Foundation (NSF) and the National Aeronautics and Space Administration (NASA). The project began in 1994 with the first of three phases (Table 2). Phase I established the philosophical foundations for the study of technology in classrooms and articulated the essential role of schools in developing technologically literate citizens. Phase II emphasized content standards for the study of technology built around a cognitive-activities base and included knowledge, abilities, and the capacity to apply both knowledge and abilities to the real world. Phase III addressed such important topics as student assessment, professional development, and program enhancement.

SUCCESS is a comprehensive, integrated, education-focused program for the infusion of technology into the curriculum of a school. The program was developed courtesy of a five-year grant by the Vira I. Heinz Endowments and focused initially on private, then public schools in western Pennsylvania. SUCCESS guarantees increased student achievement if participating schools adhere to the basic principles of the program, including: full participation of every teacher in the school, key leadership by the school principal, completion of a five-day summer workshop followed by observed and evaluated lesson presentations during the school year, cooperation with a technology advisor during the entire first year of the program, and commitment to the program for all three years.
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