Appendix D: The K–A–RPE Model—Research Investigation

Knowledge, application, and research, practice and evaluation provide the necessary distinctions among the adult-as-learner, adult-as-expert, and the adult-as-scholar to questions pertaining to similarities and differences among seemingly analogous levels of instructional programs. As with other more well-known taxonomies, the K-A-RPE Model is both progressive and assumes mastery and competency at previous levels.

In 2004, the author completed a study of higher education that examined the differences and similarities among pre-service (undergraduate), in-service professionals (graduate), and post-graduate (doctoral) programs with respect to technology-based curriculum. Specifically, the study attempted to investigate technology courses across three levels in the minds of faculty and students alike as they move through their formal education agendas. The study addressed the following questions.

- 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?

The accompanying review of the literature explored the various standards for instructional technology education published by such organizations as the SUCCESS Program (SUCCESS and the Pittsburgh Public School System), the International Society for Technology in Education (ISTE), and the International Technology Education Association (ITEA). The review also encompassed the most widely recognized taxonomies of Teaching (Bloom, Krathwohl and Kibler) as well as those classification systems specifically dealing with technology (Bledsoe, Tomei, and Bruce & Levin).

The study’s statement of the problem called for an examination of incidents of student learning objectives in information technology courses taught at the undergraduate, graduate, and doctoral levels of higher education. These objectives were compared to the three respective levels of the K-A-RPE model in an attempt to determine whether, as expected, knowledge objectives occur more at the undergraduate level, application objectives at the graduate level, and research-practice-evaluation objectives at the doctoral level.
What is reported in the next few paragraphs is a synopsis of the results of the study presented at the 2005 IRMA International Conference and published in the official journal of the Society for Information Technology and Teacher Education in 2006.

Sixty-nine (69) university and college technology programs were investigated. Most offered information technology programs on at least two of the three academic levels reviewed: undergraduate, graduate, and doctoral. An email requesting participants to submit learning objectives in their respective programs was sent to the schools and selected based on information available from their web sites. Two separate examiners reviewed the programs to enhance inter-rater reliability. In total, 1286 courses and nearly 12,000 objectives were identified, categorized, and analyzed during this research. (Figure D-1).

To recap the findings, the investigation supported the assertion that knowledge is the essential building block of technology at the undergraduate (bachelors) level of higher education. Likewise, research, practice, and evaluation were critical to post-graduate scholars. However, it could not be confirmed that application was the most used category of objective for graduate (masters) candidates. Specifically, of the 1,300 objectives reviewed at the bachelor’s level, nearly half (.49) of the learning objectives were categorized as knowledge-based outcomes; 30 percent explored the application of technology; and, 21 percent considered research, practice, or evaluation.

Surprisingly, most graduate programs continued to offer their candidates knowledge-based objectives (.43) while the application level came in at a distant 33 percent. Only a quarter of the objectives (.24) carried research, practice, or evaluation implications.

As expected, most (.44) of the doctoral learning objectives examined were found the research, practice, or evaluation level. As a result of this study of selected schools and the nearly 1,300 learning objectives, the study was determined sufficient to generalize the K-A-RPE model to higher education programs. Further investigation was recommended to explore the implications of the model in other academic disciplines within higher education in addition to the corporate training environment.

Summary of the Investigation. The K-A-RPE model distinguishes among undergraduate, graduate, and doctoral programs throughout higher education. The same model can effectively dissect the
various learning objectives in a corporate program targeting novice, journeymen, and master learners. When asked by prospective candidates, “what will I learn differently as a doctoral candidate than I did as a graduate student or as a freshman?” the K-A-RPE model provides a basis for a carefully measured response.

Simply put, a well-designed educational program, whether in formal higher education or corporate training, considers the three roles of the adult learner during the course of their life. Knowledge demands initiate the focus for the adult-as-learner as skills and competencies as well as technical proficiency form the basis for all personal development. The adult-as-expert, in comparison, traverses the broader range of abilities necessary to effectively apply learning strategy in the classroom. Ultimately, adults are expected to expand the horizons of their chosen discipline by robust, scholarly investigation followed by advancements to best practice and culminating in constructive and impartial evaluation of a discipline shared throughout a lifetime of personal achievement.