The Research Brief

College of Education
Sam Houston State University

Volume 2, Issue 1 Fall, 2010

Using Technology to Create an Authentic Learning Environment that Promotes Problem-Solving and Decision-Making for Diverse Learners

Melissa Burgess

"Once a new technology rolls over you, if you're not part of the steamroller, you're part of the road." ~Stewart Brand

Question In what ways can technology be used to create an authentic learning environment that promotes problem-solving and decision-making for diverse learners?

Summary of Findings

In Trilling and Fadel's (2009) book, *21st Century Skills: Learning for Life In Our Times*, the authors posed a question prefacing chapter six, entitled *21st Century Learning and Teaching*:

Q: What are the most important tools we need to support a 21st century approach to learning and teaching?

A. The Internet **B. Pen and Paper**

C. Cell Phones **D. Educational Games**

E. Tests and Quizzes **F. A Good Teacher**

G. Educational Funding H. Loving Parents

I. All of the above

The answer to this question is **I. All of the above**, however the authors indicated two important tools which are missing. Although the above items are important in today's global society, two tools which have stood the test of time include: "(1) *Questions* and the process to uncover their answers and (2) *Problems* and the inventing of their possible solutions" (p. 90.)

Supporting Authentic Learning Environments with Technology

The ubiquitous nature of technology touches almost every part of society – in schools, at work, and at home. Yet many schools remain behind regarding the integration of technology into the classroom. Ideally, technology integration should be routine, transparent and most importantly, supportive of goals and objectives.

Technology integration coupled with real-world, problem-based learning allows learners to analyze, design, plan, problem-solve in a variety of creative ways in real-world contexts (Hootstein, 2002). By bringing the outside world into the classroom, the gap that exists between education and the real-world is lessened as learners are able to connect with real places and people toward learning and sharing information and knowledge. Donnelly (2005) further expanded this notion by encouraging educators to create authentic, challenging tasks in a long-term or cumulative project. As problems to important issues are typically not solved in one class period--or even a day, creating real-world authentic learning opportunities for learners ultimately serves as a catalyst for other types of learning including: (a) collaborative learning; (b) heterogeneous group-

The Research Brief provides a synthesis of research on current educational or counseling issues. Each brief is authored by graduate faculty and/or graduate candidates in the College of Education at Sam Houston State University.

Published by the College of Education Graduate Programs with funding from SHSU University Advancement.

Sam Houston State University is a Member of The Texas State University System.

Dr. Melissa Burgess is Clinical Professor in Curriculum and Instruction, Sam Houston State University. You may contact her at mlb024@shsu.edu

learning; (b) heterogeneous groupings of students; (c) teachers as facilitators; (d) multidisciplinary curricula; (e) longer time periods; (f) authentic forms of assessments. The Internet alone provides opportunities for problem-based learning with infinite resources toward researching and solving real-world problems which in turn, give learners a true sense of contribution. Specifically, Donnelly encouraged educators to:

-Offer curricula based on **real-world projects** and **problems**
-Provide scaffolds, tools and **resources** to enhance learning
-Supply learners with **feedback**, and present opportunities for **reflection**
-Expand learning opportunities through **collaboration** and **discussion**

Where to Begin: Bloom's Digital Taxonomy

Churches (2007) adapted Bloom's Revised Taxonomy (Anderson & Krathwohl, 2002) toward linking current technologies with the taxonomy's progressive levels with Bloom's Digital Taxonomy (See Figure 1.)

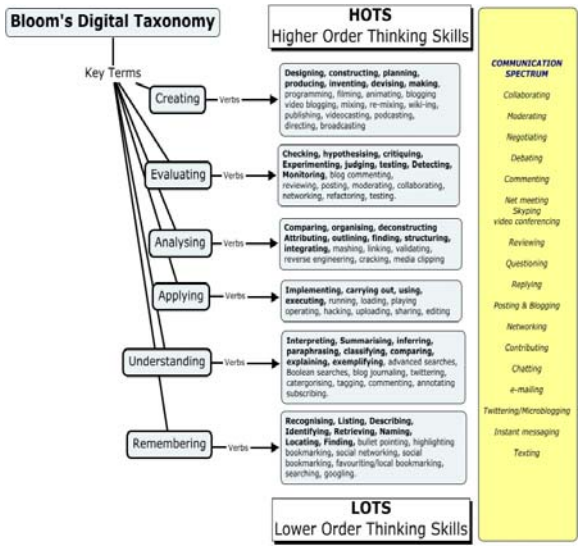

Figure 1. Bloom's Digital Taxonomy Summary Map. Copyright 2007 by A. Churches, Kristin School. Reprinted with permission.

This unique adaptation provides educators a starting point with regard to curriculum and instruction design which reaches diverse learners through a variety of modalities.

Tying It all Together

Using technology as an authentic learning platform not only equips learners with the skills necessary compete in today's society, it has the potential to supplement real-world, problem-based learning in ways that make learning meaningful and engaging. Using Bloom's Digital Taxonomy provides educators with a starting point toward linking all taxonomic levels to technologies which ultimately support various types of learners. Together, authentic learning using technology as a supplemental platform, will not only offer learning that is relevant to our students' lives today, but will also promote an enduring disposition toward inquiry, a lasting desire to solve world issues, and will support learners in making effective and informed decisions toward solving these issues.

Additional Resources:

21st century skills: Learning for life in our times- *This book emphasizes the learning and innovation, digital literacy, and career and Life skills that schools should be incorporating into curricula. The book additionally offers classroom vignettes, global examples, and schoolwork samples on DVD with mini-documentaries of innovative practices.*

Edutopia – This website provides terrific information on problem-based learning and technology integration for educators and learners.

References:

Anderson, L. W., and D. Krathwohl (Eds.) (2001). *A Taxonomy for Learning, Teaching and Assessing: a Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman.

Herrington, J., Reeves, T. C., Oliver, R., Woo, Y. (2004). Designing authentic activities in web-based courses. *Journal of Computing in Higher Education*, *16*(1), 3-29.

Hootstein, E. (2002). *Wearing Four Pairs of Shoes: the role of e-learning facilitators*. Available online: http://www.learningcircuits.org/2002/oct2002/elearn.html

Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. San Francisco: Jossey-Bass.