Chapter 1

Technology-Enhanced Exploratory Installations to Support Constructivist Professional Development: The Technology Test Kitchen

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ABSTRACT

The growth in technology tools and their uses continues to grow at an exponential pace. Whether it is for personal or professional use technology is everywhere, and it is ubiquitous. It is changing the way we seek knowledge, interact with information, and process the world around us to construct our learning pathways. Technology has made it simple for us to be consumers of information, but how do we evaluate and synthesize this information to construct meaning and create value? The technology test kitchen is a curated and managed makerspace designed for exploratory installation where novices and experts engage in deep, meaningful, constructive uses of technology for teaching and learning. The goal of the test kitchen is acquisition of “native-expert” use of technology in support of authentic learning, engendering deeper levels of technological fluency within a constructivist professional development experience.

DOI: 10.4018/978-1-5225-2838-8.ch001
INTRODUCTION

Technology is pervasive. At home, at work, at play - it’s everywhere, and it is changing everything. It is changing the way we seek knowledge, interact with information, and process the world around us to construct our learning pathways. Technology has made it simple for us to be consumers of information, but how do we evaluate and synthesize this information to construct meaning and create value?

Imagine trying to make Play-Doh at home as a tool for teaching and learning. Only a few years ago, we learned how to make Play-Doh with a recipe shared by a friend. “Here”, they’d say, handing over a piece of paper, “it’s easy to make, and it will save you some time and money.” Today, a quick internet search will yield not only myriad choices of recipe options, but also hundreds of uses, user reviews, and comments. We focus not on a single right way to make Play-Doh, instead, we the right recipe for our needs.

It is with the sharing spirit of the Play-Doh recipe that the Technology Test Kitchen (TTK) was created - a place where we share technology-enhanced recipes for effective practice in an open, collaborative makerspace that focuses on options and solutions, and that embrace the philosophy of pedagogy before technology. The TTK is an exploratory installation of 21st century learning, where constructivist learning and collaboration come to life.

This chapter will explore the background of both the space and effective practice of exploratory installations, present pedagogical challenges and issues addressed by this solution, and highlight the vision, theoretical foundations, history, and philosophy of the space more commonly referred to as the Technology Test Kitchen (TTK). Recipe books and resources are available to freely share at http://www.technologytestkitchen.org/

BACKGROUND

A recent study by the Pew Research Center on lifelong learning and technology (Horrigan, 2016) found that despite the availability of digital technology and all of the resources that accompany it, more learners choose to pursue knowledge in physical settings than online. Moreover, the study found that the majority of adult learners seeking professional learning opportunities participate in learning activities in a work-related venue rather than on the Internet. The need for professional lifelong learning is well established with well over half of employed adults looking for training or coursework to learn, improve or maintain job skills in the last year. This research demonstrates that technology installations like the TTK are the preferred method for learners that want or need more professional learning opportunities. Learners are seeking face-to-face opportunities to increase professional technology knowledge. The TTK creates what Falk and Dierking (2002) identified as a free-choice learning space. Free-choice learning is a type of lifelong learning that is self-directed, voluntary, and guided by individual needs and interests.

Understanding how learning occurs is a complicated theoretical construct. Why some approaches and techniques are more effective than others is still a cause for some debate. In the twentieth century several major learning theories have been posited on how the process of learning occurs. These theories fall into three major categories: behaviorism, cognitivism and constructivism. Early learning theories focused on behaviorism and observation of end result of learning. Behaviorism has solid contributions to the puzzle of learning, but does not explain the process of learning and only focuses on the end result. Cognitivism can be traced back to the early twentieth century and explores the learning process, and the works of Edward Chase Tolman, Jean Piaget, Lev Vygotsky, Jerome Bruner, and German Gestalt