Chapter VI
Enhancing Authentic Assessment Through Information Technology
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ABSTRACT
Constructivist education usually involves authentic assessment, which is affected by the media used to teach. Information technology can enhance or hinder the authenticity of assessment in key ways. This chapter provides a framework to analyze the opportunities to enhance authenticity when assessment is mediated by information technology, as well as the limitations of IT mediation on authenticity. The degree of authenticity possible is determined by several aspects of the competence being assessed: the chronicity of access to and use of information, the durability of the display, the use of written, oral and non-verbal communication, and computer use. This framework is used to identify IT tools that enable more authentic assessment, as well as sample approaches. It identifies aspects of competences that may not be authentically assessed via information technologies, limitations on the use of technology, and future trends.

INTRODUCTION
For more than twenty years, the preeminent theoretical approach to understanding and improving education has been constructivism. Many researchers have built upon the work of Piaget, Dewey, Vygotsky and others to develop different, occasionally competing paradigms of how people think, learn and know within this umbrella concept, such as radical constructivism, social constructivism, critical constructivism and information-processing constructionism (Dougiamas, 1998; Downing & Holtz, 2008; Gergen, 1995; Steffe & Gale, 1995; von Glasersfeld, 1995).
Although there are many differences among these approaches, most share several key principles about how people know and learn:

- Knowledge is adaptive; that is, it helps people to deal with and respond to the world around them.
- Learners actively construct knowledge, rather than passively receiving it from outside experts. Learners need to actively engage with concepts, processes and facts.
- Learning comes from the interaction of the person and his/her environment, particularly with other people; it often socially constructed.
- Learners are not “blank slates” but rather complex thinkers. New knowledge must fit into, and enhance the complexity of, the knowledge and schemas that they already have. Learners perceive all new information through a lens of their history, beliefs, values and perceptions, which are continually evolving.

There are many pedagogical implications of constructivism. These include the importance of practical and applied work, as well as collaboration and social networking. Learning happens best with scaffolded educational materials that support developing expertise over time; as well as flexible and student-centered course designs that provide multiple paths to learning. Learners should have the autonomy to regulate their own learning; and assessment should be authentic (Anderson, 2008; Bonk & Cunningham, 1998; Dougiamas, 1998; Downing & Holtz, 2008; Hirumi, 2002). This chapter will focus on authentic assessment as a constructivist pedagogical approach, and how it is enhanced – or hindered – when mediated by information technology.

Authentic assessment has been defined as “engaging and worthy problems or questions of importance, in which students must use knowledge to fashion performances effectively and creatively. The tasks are either replicas of or analogous to the kinds of problems faced by adult citizens and consumers or professionals in the field” (Wiggins, 1993, p. 229). Authentic assessment is critical if students are situated in the center of the learning, rather than having education revolve around the faculty, and when learning is socially constructed (Albon, 2003; Bransford, Brown & Cocking, 1999) because it is meaningful, realistic, complex, and demonstrates competence through the performance of “real world tasks” (Mueller, 2006). It measures not just what students know, or can do, but what they actually do.

Key principles of authentic assessment include: 1) students are required to “to be effective performers with acquired knowledge”; 2) students address “the full array of tasks that mirror the priorities and challenges” of real world use; 3) there are high standards and mastery of complex skills, because students must “craft polished, thorough and justifiable answers, performances or products”; and 4) assessments “involve ‘ill-structured’ challenges and roles,” reflecting the requirements of real world use (Wiggins, 1990, What Is Authentic Assessment section, para 4-9).

**Constructivism and Authentic Assessment**

In most respects, authentic assessment reflects a constructivist approach to instruction. It places the student in the center of the learning activity, and involves meaningful and important applications of knowledge. It requires active engagement with information, sometimes socially, and builds on existing knowledge of the learner. It provides for situated learning, and has many opportunities for scaffolding. It gives students a degree of autonomy over their learning process and product.

However, in most work places, work products are produced with limited autonomy. Supervisors and work places have specific requirements for