Making the Case for Authentic Assessment in ICT

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Abstract: The objective of assessing a broad range of student outcomes by using performances more complex than multiple-choice tests has been generally praised as worthwhile by assessment researchers, theoreticians, and practitioners. However, researchers have repeatedly raised the concern that scoring of individual student work products and performances is subject to too much variability unrelated to the underlying dimensions being assessed for this to be a useful approach of assessing student skills, factual knowledge, understandings, competencies, and dispositions.

As more and more testing in all subject areas begins to move onto the computer, it is even more likely that many paper and pencil tests will simply be transferred to computer-generated and scored tests, locking in the standardized assessment process. This is especially troublesome for ICT assessment, as it is highly variable and individualized, and has no paper and pencil corollary.

To make the case for authentic assessment in ICT, one must overcome several obstacles, including the widely held beliefs that authentic assessment is difficult, time consuming, and subjective.

This paper attempts to answer these issues and provide justifications why one would continue to recommend authentic assessments of complex student performances, specifically in ICT.

Keywords: Assessment, Digital literacy, Evaluation and assessment, Learning communities, Personalised learning

1. Introduction

Authentic assessment refers to assessment tasks that resemble tasks in the real world and in school (Wiggins, 1996). Its aim is to assess many different kinds of literacy abilities in contexts that closely resemble actual situations in which those abilities are used. Furthermore, authentic assessment values the thinking behind
work—the process, as much as the finished project (Pearson and Valencia, 1987; Wiggins, 1989; Wolf, 1989).

In ICT, the wide range of tasks that can be accomplished, the variety of tools that can be used, the fast rate of change of technology and the ultimate goal of integrating ICT into all aspects of curriculum make the flexibility of authentic assessment desirable.

Technology supports this practice when used in the context of meaningful tasks and projects because it provides products (student writing, multimedia presentations, computer simulations, spreadsheets) that can be stored, duplicated, shared, and discussed (Means and Olsen, 1995, p. 89). Marty Abbott, Director of High School Instruction, Fairfax County (Va.) Public Schools says it well; “Asking students to show what they can do replaces past practices of “catching kids at what they didn’t know” (Ezarik, 2004).

2. Assessment for the 21st Century

Performance assessment is a term that is commonly used in place of, or with, authentic assessment. Performance assessment requires students to demonstrate their knowledge, skills, and strategies by creating a response or a project (Rudner and Boston, 1994; Wiggins, 1989). The new paradigm requires methods like performance assessment. Instead of giving a test that consists of a number of varied items believed to constitute a sample of some underlying knowledge or technology skill, the new approach attempts to record a complex performance that represents a rich array of a student’s abilities. Rather than a representative sample, it is meant to be a measure of “demonstrated capability.”

A traditional assessment scheme only taps a small part of what it means to be technologically literate in the 21st century. Performance assessment is a dynamic process calling for students to be active participants who are learning even while they are being assessed. No longer is assessment perceived as a single event. “The purpose of assessment is to find out what each student is able to do, with knowledge, in context,” writes Grant Wiggins (1997, p. 20).

Becker and Lovitts (2003) state that authentic assessment should determine whether a student gains new knowledge or can apply knowledge to new contexts—as opposed to the ability to repeat ideas or facts previously remembered. In ICT, allowing students to complete projects using tools and materials of their own choosing is appropriate for a rapidly changing subject that can range so widely in interests and personal preferences for different types of projects. Technology can mean all kinds of projects – from multimedia and movie making to computer construction and robotics.

Authentic assessment allows students to demonstrate their competence while being able to use the technology tools and resources that they had come to rely on while creating their project. It is their ability to employ computers during the
creation of an ICT project that indicates whether their computer experience assists them in demonstrating relevant underlying competencies.

According to Becker and Lovitts (2003), there are three reasons why authentic assessment is desirable: (1) to maximize the motivation and effort of the participants; (2) to appropriately measure certain outcomes that require initiative; and (3) most importantly, to more fully cover the domain of applicable content and skills. In ICT, the motivation of the participants is certainly increased by allowing them to choose the nature of their own assignments that relate to their personal interests, which in turn will maximize the types and variety of skills and content needed to complete the tasks.

An important factor in authentic assessment is its ability to work with student work that varies widely. A reason for not specifying project tasks and specific content in detail is that the outcomes to be studied (that is, outcomes hypothesized to be related to standard use of computer technologies) include competencies related to students’ defining problems, identifying and obtaining needed information, and carrying out tasks independently. A project defined in too much detail would eliminate those important dimensions of student achievement from the purview of the study.

Becker and Lovitts (2003) describe another reason why projects should systematically vary, “A reason for building into the design systematic variability in tasks among students is to enable a project-based study to adequately tap a wide range of concrete manifestations of the underlying competence domain.” In multiple-choice tests, this goal of domain-content coverage is accomplished by having each student address a large number of test items. In a project-based assessment design, this broad sampling of the underlying competencies and understandings is accomplished by having different subject-matter content for different subsets of assessed subjects.

3. Defining Authentic Assessment in ICT

McTighe (1997) has identified two parts common to authentic assessments: a clearly defined task and a list of explicit criteria for assessing student performance or project. According to McTighe, performance assessment is built upon these four assumptions:

1. **Knowledge is Constructed** – Research tells us that students show greater interest and perform at higher levels of learning when they are required to organize facts around major concepts and then actively construct their own understanding of those concepts. They also retain knowledge better. Active participation is the key to all performance assessments (Sweet, 1993).

2. **The Task is Worthwhile** – The ideal performance task is “inherently instructive, actively engaging students in worthwhile learning activities.” (Sweet). Performance tasks are therefore open-ended and assess an array of
knowledge and skills related to the curriculum; thus, the curriculum powers
the test, not the other way around (Kulieke et al., 1990).

3. **Better Assessments Improve Teaching** – The overall purpose of
assessment is “to provide valid information for decision making” (Kulieke
et al., 1990). When teachers prepare students for a performance task, they
must carefully describe the task and the standards that will be used to
evaluate performance.

4. **Meeting the Criteria Improves Learning** – Students should be active
participants in their own learning. They perform better when they know
what goals they are working towards, when they have the opportunity to
examine models of excellence, and when they understand how their own
performance compares to a set of established criteria.

Becker and Lovitts (2003) lists attributes of the authentic assessment that
projects are likely to encompass:

- Attributes of the work process (e.g., initiative, metacognitive insight, project
  planning, collaboration, and leadership).

- Attributes of student products (e.g., completeness).

- Apparent levels of skill, knowledge, understanding, quality of reasoning and
  thinking, valuation and motivation, and learning (i.e., increases over time in
  those attributes) in areas most likely to be affected by their use of computer
  resources and tools—that is, information acquisition, analysis, synthesis,
  evaluation, and application of information; and writing and communication.

Research has shown that when students become more active participants in the
assessment process, they will begin to evaluate their strengths and attitudes,
analyze their progress in a particular area, and set goals for future learning
(Education Place, 1997).

4. **Subjectivity and variability in Authentic Assessment in ICT**

The objective of assessing a broad range of student outcomes by using
performances more complex than multiple-choice tests has been generally praised
as worthwhile by assessment researchers, theoreticians, and practitioners.
However, researchers have repeatedly raised the concern that scoring of individual
student work products and performances is subject to too much variability
unrelated to the underlying dimensions being assessed for this to be a useful
approach of assessing student skills, factual knowledge, understandings,
competencies, and dispositions (Becker and Lovitts, 2003).

These cautions derive in part from empirical studies (Baxter and Shavelson,
1994; Gao, Shavelson, & Baxter, 1994; Koretz, Stecher, Klein, McCaffrey, &
Deibert, 1993; Shavelson, Baxter, & Gao, 1993; Shavelson, Baxter, & Pine,
1991). These studies have found that a well-defined and well-motivated scoring
procedure produces limited variability in scoring of specific tasks, but that
measuring the general competency of knowledge underlying its manifestation on
any one task requires a great number of diverse tasks ranging across the relevant content or procedural domain.

Given these problems with making reliable generalizations, why would one continue to recommend authentic assessments of complex student performances? There are several reasons:

- The people who know the candidate best, peers, teachers, and advisors should administer ICT project assessment. Those closest to the student can certainly be more cognizant of competence than someone scoring a test who does not know the student.
- An examination of how computer technologies are being used in schools suggests that, in particular, it is necessary to develop authentic assessment structures that permit students to use computer skills, tools, and resources in order to demonstrate their ability to do this real-life work—to plan investigations, to acquire information, to analyze data, to articulate reasoning, to collaborate with others, and to present findings to an audience.
- The importance of measuring the full ranges of important student outcomes, which traditional measurement is seen as largely incapable of doing.
- The importance of student and teacher motivation and effort for achieving performances of appropriate quality relative to underlying competencies.

5. Conclusion

For too long, comparative assessments of student academic accomplishment have been limited to short-duration paper-and-pencil tests. Such standardized tests are not likely to provide accurate assessments, either on an absolute scale or on a relative one, of the ability of students to apply basic skills and domain knowledge in concrete contexts that more closely resemble real-life work. ICT provides the ideal combination of attributes that make authentic assessment worthwhile and possible.

References


Rudner, L., and Boston, C.: A Long Overview of Alternative Assessment. Available from gopher://vmsgopher.cua.edu/00gopher_root_eric_ae%3A%5B_alt%5D_overv.txt (n.d.).


