

Chapter 9

Crowdsourcing and Education with Relation to the Knowledge Economy

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ABSTRACT

Crowdsourcing in the development and use of educational materials involves Web 2.0 tools to leverage collaboration and produce materials from user groups and stakeholders. Such a community-based design, sometimes called a participatory design, can help capture, refine, carry out, systematize or evaluate aspects of online learning materials. Here the use of crowdsourcing is discussed in educational assessments. This paper presents new evidence on how examinees respond to use of crowdsourcing. It shows how a “modify” option in the content can lead to the generation of new materials, and new knowledge, through tapping into the wisdom of the group.

As Jeff Howe pointed out (2008), the possibilities for crowdsourcing in the globalized knowledge economy depend on how the crowd is being used. This paper considers crowdsourcing options in educational assessment, where knowledge sharing of this type is just beginning to emerge. New forms of educational assessment based on “wisdom of the crowd” could expand what counts as evidence, and tell us more about what and how students learn in a knowledge economy.

According to Howe (2008), crowdsourcing involves a company or institution taking work

once performed by employees and outsourcing it to a network of people. Here crowdsourcing will be applied to the development and use of educational materials involving Web 2.0 tools to leverage collaboration from user groups and stakeholders. Crowdsourcing is being used for this purpose in educational assessment by such projects as Assessment and Teaching of 21st Century Skills (ATC21S), sponsored by Cisco, Intel and Microsoft. The purpose of ATC21S is to suggest and evaluate new ways of assessing 21st-century skills, as well as to encourage teaching and adopting those skills in the classroom. International ties in the project through the global economy are

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extensive. Founding and associate countries collaborating on the ATC21S project are interested in the knowledge economy and how to better prepare students for global futures. The countries include Australia, Costa Rica, Finland, the Netherlands, Russia, Singapore and the United States.

Now and previously, “ask the customer” practices have had a longstanding history in assessment, such as in customer evaluations, survey design, response processes, exit interviews, and focus groups. The concept of crowdsourcing extends these techniques with wider reach and much larger amounts of group data, both for normative comparisons on the fly or in cross context ratings. Here an example of crowdsourcing being used to create educational materials themselves is presented, in the area of innovative assessments.

INTERMEDIATE CONSTRAINT TAXONOMY FOR E-LEARNING ASSESSMENT QUESTIONS AND TASKS

Computers and electronic technology today offer myriad ways to enrich educational assessment both in the classroom and in large-scale testing situations. The question type currently dominating much of large-scale computer-based testing and many e-learning assessments is the standard multiple-choice question, which generally includes a prompt followed by a small set of responses from which students are expected to select the best choice. This kind of task is readily scorable by a variety of electronic means and offers some attractive features as an assessment format. However, if developers adopt this format alone as the focus of assessment formats in this emerging field, much of the computer platform’s potential for rich and embedded assessment could be sacrificed. Thus the need for more innovative assessment approaches in education are being investigated by many scholars.

Questions, tasks, activities and other methods of eliciting student responses are often called items in the assessment process.¹ In the computer-based platform, almost any type of interaction with a user can be considered an assessment item. Note that a working definition we have proposed for an assessment item is any designed interaction with a respondent from which data is collected with the intent of making an inference about the respondent.

Given this definition, there are many ways in which assessment items can be innovative when delivered by computer, and in which crowdsourcing can contribute to the innovations.

One organizational scheme describes innovative features for computer-administered items, such as the technological enhancements of sound, graphics, animation, video or other new media incorporated into the item stem, response options or both (Parshall, Davey, & Pashley, 2000). But other classification possibilities are myriad, including how items function. For some innovative formats, students can, for instance, click on graphics, drag or move objects, re-order a series of statements or pictures, or construct a graph or other representation. Or the innovation may not be in any single item, but in how the items flow, as in branching through a changing series of items contingent on an examinee’s responses.

Much of the literature on item types is concerned with innovations of the observation—the stimulus and response—that focus on the degree of construction versus selection, or constraint versus openness, in the response format. A number of characteristics are common to most constructed-response and performance formats:

“First and perhaps most obvious, these alternative formats require an examinee to supply, develop, perform, or create something. And, typically, these tasks attempt to be more engaging to the examinee than conventional multiple-choice items. Often, they employ real-world problems that people of a comparable age and peer status may encounter

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