

UC San Diego

UC San Diego Previously Published Works

Title

PUTTING THE ED BEFORE THE TECH: EVALUATION AND ASSESSMENT OF ELEARNING

Permalink

<https://escholarship.org/uc/item/43j3w4xc>

Journal

Computer in Libraries, 40(6)

Authors

Roth, Amanda
Dominique, Turnbow

Publication Date

2020-09-01

Putting Education Before Technology Through Evaluation and Assessment of eLearning

By Dominique Turnbow and Amanda Roth

The allure of eLearning is hard to deny. We've become comfortable with the idea that everything can be learned online -- through a website or watching a video. eLearning appeal to digital natives and allow students to work independently. However, it is important to consider that online learning must include *learning* and therefore *assessment of learning*. The ideas presented in this article will help you evaluate online learning objects, defined by Wiley as "any digital resource that can be reused to support learning" (2000, p.7) using a student-centered approach to ensure that learning remains the focus while using educational technologies to teach information literacy.

Defining Evaluation and Assessment

Many people use the terms "evaluation" and "assessment" interchangeably; however, these terms have different definitions for educators and instructional designers. The Association of College and Research Libraries (2012) offers a definition: "you *assess people* and *evaluate things*." For example, you would assess what students learned from your workshop; you would evaluate how they liked the workshop format, delivery, etc. When you apply this to an online environment, you would evaluate the learning object's features and assess student learning as a result of engaging with the learning object.

Using the Kirkpatrick Model

A common framework used to evaluate and assess learning is the Kirkpatrick Model (2014), which describes four levels used to evaluate and assess learning. We have applied this model to our instruction in the following way:

Level 1 Reaction: How satisfied are learners with the instruction?

Level 2 Learning: What have learners learned?

Level 3 Behavior: What do learners apply in practice?

Level 4 Results: The degree to which learners have achieved the overall outcomes of the course? (This is a high-level perspective that attempts to capture the Return on Investment of the instructional practices.)

Level 1 of the Kirkpatrick Model attempts to uncover your learner's *reaction* to their learning experience. How satisfied are learners with the lesson? Were learners engaged? Is the content relevant to them? It might surprise you that the first level seems to have nothing to do with

what learners actually learned, but instead with their satisfaction with the learning experience. If you've ever filled out a questionnaire after a workshop about how you liked it, you've experienced an evaluation of Level 1. Instructional designers and educators refer to this type of evaluation survey as "smile sheets" because what you're really after is evidence of satisfaction from your learners. Level 1 is not concerned with if learners can do what you hope you've taught them, it is about learner reaction, including their satisfaction and engagement. If students are satisfied and engaged, it is likely they will feel more confident as a result of the instruction. In an online learning environment, you would gather feedback from your students about whether or not they liked using the learning object.

Pedagogically sound instruction leads to observable changes in learner behavior, which is . important because you can measure only what you observe. Levels 2 through 4 of the Kirkpatrick Model look at different ways in which an instructor is able to assess changes in a learner's behavior as a result of instruction, often occurring over a period of time. Turbow and Zeidman-Karpinski (2016), argue that behavior changes require time and practice and it is unlikely for most librarians to be able to perform assessment beyond Level 2, regardless of in-person or online instruction. This is because librarians are unlikely to observe in-person student behavioral change over time. Likewise in an online environment, learner behavior cannot be observed by the instructor because they are an unseen participant in the learning experience. This requires a unique approach to assess eLearning.

<insert broken ring image>

Maximizing Level 1 Evaluation and Level 2 Assessment

To start with maximizing Level 1 (evaluation) and Level 2 (assessment), start with the learning outcomes for the object. Well-written learning outcomes are essential for providing effective instruction and sound assessment. Outcomes need to articulate what behavioral change should be observable as a result of the instruction. An example of a learning outcome might be "As a result of this tutorial, students are able to identify the parts of a citation (e.g. title, author, publication, etc.)?" Although we might not be able to observe changes in behavior, we can ask students' about their perceived readiness to enact behavioral change based upon what they have learned as illustrated in the following example of Level 1 evaluation.

Student question: As a result of this tutorial, are you able to identify the parts of a citation (e.g. title, author, publication, etc.)?

A. I am NOT ABLE to identify the parts of a citation

- B. I have a general awareness of parts of a citation, but I will need MORE GUIDANCE to identify them.
- C. I have general awareness of parts of a citation, but I will need MORE PRACTICE to identify them.
- D. I am ALWAYS able to identify the parts of a citation.

While this question is self-reported data, there is no expectation that the results will be used to determine their expertise on a topic. Instead, we can use it to determine:

1. Does the learning object content offer enough guidance? In this case, the guidance would be associated with identifying the different parts of a citation.
2. Are students over or under-confident in their ability to perform a skill?

Ideally, most students will select option C from the multiple-choice answers listed. It is reasonable to assume that they will get the information they need from the learning object to feel like they can perform the new skill on their own, but want more practice. If the majority of students select A or B, then the learning object content would need to be improved. If the majority select options D then more nuanced examples/practice are likely needed so they aren't overconfident in their abilities.

<insert scale image>

Although we are unable to observe students' ability to create citations in the asynchronous environment in the same way we would assess their learning in the face-to-face environment, we can evaluate their readiness to do so as a result of the learning that takes place within a learning object. In this way, librarians are able to assess whether or not an object is meeting their information literacy outcomes.

Collecting Feedback

One of the easiest ways to collect data for the evaluation and assessment of a learning object is to create a feedback survey. Free survey applications like Google Forms are simple to use and allow for anonymized data. The survey should be short and succinct and you should plan on having one or two questions for the evaluation of the object and one assessment question for each learning outcome. By doing so you will learn about how engaging the learning object is and students' readiness to put their new knowledge into action.

Although it may be tempting to use Likert Scales to gather evaluative data at the Level 1 level, Will Thalheimer (2016), a recognized expert on "smile sheets", notes that Likert Scales can be problematic in that it is difficult to determine what each point on a 1-5 scale equates to or the rationale for an individual's choice of a 2 over a 3. It would be better to ask targeted

questions for feedback about the object relating to ease of use, clarity of presented content, etc.

If your feedback about the object's evaluation is favorable but the readiness to practice the new skill is not, then you have determined that technology has superseded the learning. Conversely, if the assessment data you have indicates that students are ready to put their new skills to work but the evaluation of the object is not favorable don't panic. Online learning may still be a good way to address your instructional goal. Ideally, feedback would be positive in both areas however the focus should be on learning rather than the learning object.

If you plan on using eLearning objects that are downloaded from an app store or learning management system the evaluation and assessment of the learning object is an integral step in creating student-centered learning at all levels from K-12 and beyond. In the absence of an in-person instructor, you will rely heavily on the formative assessment interactions and feedback mechanisms that exist within the learning object. It is essential for learners to receive feedback to clarify concepts and skills. When we design and develop learning objects, we rely on formative assessment that supports the learning level of the Kirkpatrick Model by providing students with activities that allow learners to interact with the content (Turnbow and Roth, 2019). Before making a learning software purchase or free download, consider the following:

1. Does the learning object or software application have clearly defined learning outcomes?
2. In what way is feedback provided to learners?
3. How are the learning outcomes measured? Is formative and/or summative assessment used?
4. How is data ownership, use, and privacy handled?
5. How does the application support accessibility?

Using the method we've presented for evaluation and assessment of your applications will help ensure you're providing a quality learning experience that not only appeals to learners but also provides them with the information literacy skills they need for student success.

References

Association of College and Research Libraries. (2012, January). Characteristics of programs of information literacy that illustrate best practices: A guideline. Retrieved from <http://www.ala.org/acrl/standards/characteristics>

Kirkpatrick Partners. (2014, May 9). The official site of the Kirkpatrick Model. Retrieved

from

<http://www.kirkpatrickpartners.com/AboutUs/DonKirkpatrick/tabid/223/Default.aspx>

- Thalheimer, W. (2016). *Performance-focused smile sheets: A radical rethinking of a dangerous art form*. United States: Work-Learning Press.
- Turnbow, D., & Zeidman-Karpinski, A. (2016). Don't use a hammer when you need a screwdriver: How to use the right tools to create assessment that matters. *Communications in Information Literacy*, 10(2).
- Turnbow, D. & Roth, A. (2019). *Demystifying online instruction in libraries: People, process, and tools*. Chicago: ALA Editions.
- Wiley, D. A. (2000). Connecting learning objects to instructional design theory: A definition, a metaphor, and a taxonomy. In D.A. Wiley (E.d.), *The Instructional Use of Learning Objects*: (Online version). (pp.7). <http://reusability.org/read/chapters/wiley.doc>