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# But What Did They Learn? What Classroom Assessment Can Tell You about Student Learning

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## Abstract

This paper compares a typical course or session evaluation with a classroom assessment technique (the “minute paper”) with the goal of demonstrating what the assessment can tell the librarian about what the students have learned, and how the librarian can alter his or her teaching in light of the assessment results, thereby closing the loop on the assessment cycle. The paper identifies areas where standard course evaluation forms do not provide sufficient information for the instructor to make changes to his or her teaching, in order to increase student learning. The results of actual “minute paper” assessments, which ask students to identify one useful thing they learned and one thing they are still confused about, are discussed and common themes are identified. The paper also details the specific changes the author made in her approach to teaching and learning in the course sessions where the assessments were used. Finally, the paper offers suggestions for using assessment results as a communication and outreach tool with faculty.

## Introduction

Course evaluations are nearly ubiquitous in higher education; administered at the end of the semester, they offer students an opportunity to critique the course and the faculty member, with the goal of improving instruction and, as an assumed consequence, student learning.<sup>1</sup> Taking a cue from their colleagues on the teaching faculty, instruction librarians often use a modified version of a course evaluation form at the conclusion of “one-shot” instruction sessions, with the same goals of improving instruction and student learning.

This paper examines the differences between these traditional course or teaching evaluations,

and classroom assessment techniques for assessing student learning outcomes. The paper will discuss what kinds of information can be gleaned from each kind of tool, and why a librarian would choose one tool over the other. It will look specifically at one particular classroom assessment tool, the minute paper (also sometimes called a half-sheet response or “muddiest point” exercise), and demonstrate how the author used information from these assessments to change her instruction and improve student learning.

## Defining Terms: Evaluation

Words like “assessment” and “evaluation” can be notoriously slippery, and there are contexts in which they are used in almost precisely the opposite way in which they will be used here. For example, Peter Hernon and Robert Dugan draw a distinction between assessment and evaluation where assessment is formative—i.e., used on an ongoing basis during instruction to improve teaching and/or student learning—while evaluation is summative, used at the conclusion of a class session, course, or program, and is virtually indistinguishable from grading.<sup>2</sup> Needless to say, this is not the distinction that will be used here.

In this paper, “evaluation” will refer primarily to a standardized, end-of-semester or end-of-class session survey, in which students rate a class or an instructor in a number of categories, usually using a 5-point Likert scale, and often, though not always, including open-ended questions at the end. An example of this kind of instrument, adapted for use in a one-shot library instruction session, is given in Figure 1. Figure 1 is a composite instrument, generated with questions from a number of evaluation forms from colleges and universities across the United States.<sup>3</sup>

**Figure 1: Sample questions from a typical evaluation for one-shot library instruction.**

	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
The librarian was prepared for the session.					
The librarian was organized.					
The librarian included time to practice the skills that were introduced.					
The librarian explained and demonstrated search strategies that were relevant to my research needs.					
The handout was helpful.					

Partly because they are so common in higher education, course evaluations have made their way into library instruction. Even the leading library instruction and information literacy conference in the US, LOEX, uses evaluation forms at the conclusion of each presentation. Unfortunately, evaluations are often a better measure of students' satisfaction with the session, than of the actual quality of instruction.<sup>4</sup> In addition, there is a substantial body of research that challenges the validity and reliability of standard course evaluations, and questions whether there is much if any correlation between the strength of an instructor's ratings and how much students in the class actually learned.<sup>5</sup> These questions are compounded by users' tendency, when using a Likert-scale rating system, simply to mark the middle choice across the board.<sup>6</sup> Students fill the forms out quickly, without much reflection, and especially tend to skip over the more time-consuming open-ended questions at the end of the form, thereby short-changing the richest source of data that the evaluation instrument can provide.<sup>7</sup>

If course evaluations are this problematic, why do librarians use them? Librarians and administrators like the numerical data generated by Likert-scale instruments, allowing them to perform statistical analyses and comparisons. Because they are so commonly used by teaching faculty, they lend an air of legitimacy and academic rigor to library instruction, particularly in institutional settings where librarians' status is not on a par with the teaching faculty. Organizational inertia can also be a factor in librarians' continued use of these tools; once established, procedures that are intended to improve instruction can be difficult to

discontinue, even when research shows that they have little to no correlation with improved student learning.

### Defining Terms: Classroom Assessment Techniques

Unlike course evaluations, which largely measure satisfaction, outcomes assessment attempts to measure learning. In many cases and contexts, assessment can be virtually indistinguishable from grading. Many of the tools used for outcomes assessment—quizzes or exams, portfolios, rubrics for judging the quality of student work—are familiar to any instructor. The time constraints of a one-shot library instruction session, however, preclude the use of anything more elaborate than the very shortest of quizzes. Fortunately, there are also a wide variety of less formal options for assessing student learning that work very well in a one-shot setting. Many of these less formal options, referred to as "classroom assessment techniques," are compiled in a widely-recognized collection by Thomas Angelo and Patricia Cross.<sup>8</sup>

One of the most common informal assessment tools is the "minute paper," sometimes referred to as a "muddiest point" exercise or "half-sheet response."<sup>9</sup> At the conclusion of the class session, students are asked to write two things on a sheet of scratch paper: one useful thing they learned in class that day, and one thing they still have questions about or are still confused about.<sup>10</sup> There are slight variants: students may be asked to write down the most important thing they learned, to choose the most important idea that the class covered, or to include their names to facilitate follow-up on their specific questions. Unlike exams, standardized tests, or Likert-scale

course evaluations, informal techniques such as these don't generate the kind of quantitative data that can be subjected to statistical analysis. However, they nevertheless can provide significant insights into what students are learning, and perhaps more importantly, what they are *not* learning, as a result of library and information literacy instruction.

#### What We Can Learn From Evaluations

Ultimately, the point of evaluations or assessment techniques is to improve student learning by improving instruction. With that in mind, we can return to the sample class evaluation in Figure 1, and examine some of the questions individually to see what information they provide to the librarian instructor, and how he or she might use that information to change his or her teaching in the service of improved student learning.

#### Preparation and Organization

- "The librarian was prepared for the session."
- "The librarian was organized."

If the librarian scores well on the preparation question, that is a good first sign. And likewise, if the librarian's scores on this question are on the lower end of the Likert scale, that is clearly an area for improvement. However, the important question to ask here is whether this is useful information to the librarian, or whether it is something s/he already knows about his or her teaching. In almost all cases, the librarian knows perfectly well how well he or she was prepared for the session in question. Asking students to rate the librarian on this factor doesn't provide any new information to the librarian.

This applies equally well to the next question on the sample evaluation, regarding organization. While some people's perception of their own organizational skills may not match up with their students' evaluations, library professionals generally have a good grasp of whether organization is a challenge for them or not. Spending class time asking students to evaluate factors that the librarian can usually evaluate for him- or herself is inefficient, and can be somewhat insulting to both the students and the librarian. Even more obviously, the next question, "the librarian included time to practice the skills that were introduced," does not provide any new information either; it simply asks the students to

report factual data—data which, again, the librarian can easily enough provide.<sup>11</sup>

#### Search Topics

- "The librarian explained and demonstrated search strategies that were relevant to my research needs."

The item "the librarian explained and demonstrated search strategies that were relevant to my research needs" alludes to the commonly-understood principle that it's better, when demonstrating search strategies, to use sample search topics that are closely related to the students' own research topics, or even use the students' own topics themselves, rather than generic topics with no particular relevance to the subject at hand. A low score on this item indicates one of two things: either the librarian did not attempt to select relevant topics, or the librarian *did* attempt to select relevant topics, but did not succeed. If the former is the case, this is another situation where the evaluation does not provide any information that the librarian doesn't already have: s/he knows whether s/he chose generic search topics or not.

If the latter is the case, however, and the librarian attempted to select relevant topics, then this might be new information. The problem arises, however, in trying to determine how to respond to the students' evaluation: in what ways were the topics not relevant? What topics would have been more useful to the students? Unfortunately, there is no information here that helps the librarian improve his or her teaching; there is only the criticism that the topics weren't relevant.

This is the case with many standard evaluation questions: they indicate that the instructor did badly (or well), but give no feedback on how to do better. Other questions where this applies include the previously-discussed question about organization, and "the handout was helpful." One hopes that students who rate an instructor poorly on one or more factors will elaborate, and provide suggestions or more specific criticisms, in the free-response portion of the evaluation instrument—and indeed, some forms provide free-response areas after each question to encourage this elaboration—but, as we have seen above and as many instructors report anecdotally, students

complete evaluations so quickly that they rarely take the time to answer free-response questions.

In summary, therefore, many standard questions on instruments modeled after course evaluations suffer from two fundamental flaws: they either provide information that the librarian instructor already has, such as whether s/he was prepared for the session or provided time for the students to search independently, or they offer criticism (or praise) with no information as to how to improve the quality of instruction.

### What We Can Learn From Classroom Assessment Techniques

The quotations and excerpts that will be discussed in this section are taken from actual minute paper assessments done by the author in a variety of one-shot library instruction sessions. In many cases, these sessions covered three basic learning outcomes: transforming a research topic into searchable keyword strings with Boolean operators; searching for articles in databases on the EBSCO platform; and obtaining the full text of articles in print, online, or via interlibrary loan using our link resolver. None of the quotations have been corrected for spelling, grammar, or correct library terminology; errors, especially in library terminology, are important indicators of students' familiarity with and understanding of essential concepts.

#### Finding Print Articles

- "Finding a periodical can sometimes be hard."
- "I'm still confused on where to find the article if it's still in the library."
- "I'm still confused about where to find certain articles."

These three quotations are representative of many, many comments that have appeared in the second portion of the minute paper, "one thing I'm still confused about." Comments like this—usually no more than a handful for each class—appeared on the assessments for nearly every class that covered locating print journal articles, despite the fact that the bound periodicals are shelved by title, all in one location. Individually, these comments are nothing more than an indication that some students in most classes are uncertain about how to locate articles in our library's print collection.

In the aggregate, however, they are much more instructive, because receiving comments like this on nearly *every* assessment indicates a more pervasive problem: our students simply have no experience locating individual articles among a collection of bound periodicals. Anecdotal evidence later confirmed this problem; when a class of students were given citations to print articles in the collection and asked to locate them, almost all of them needed assistance with the task. As a result, we are currently revising the way that we teach these skills. One possibility is the development of a video that walks the student through the process—focusing particularly on the publishing model of journal titles, volumes, issues, and page numbers—and shows where the bound volumes are located in our building. Where previously we would simply point students to the room where the bound periodicals were shelved and instruct them to go find the article, we now go with the student into the collection, discuss the process of locating an article, and ensure that the student obtains the item she is looking for.

#### The "Find Text" Flowchart

- "The 'find text' flowchart is really helpful."

This comment refers to a library instruction handout that used a flowchart to illustrate the process of locating the full text of an article using our link resolver. Unlike the previous example, however, this comment was notable not because it was representative of many other comments, but rather because it was unique. In two semesters of using the flowchart handout, no other student had ever commented that the handout was useful. This comment prompted a re-thinking of the handout, and eventually it was transformed into a short screencast video, which shows every step of the process. Since the video has been introduced, there has been a notable increase in positive comments, including many like the following:

- "Full text button video b/c we could see what we would come across when clicking on it."
- "Find text button (very good video)"
- "How to use SMC text finder is something I learned new today! Loved the video!"

The frequency of these comments, compared with the lack of comments regarding the previous flowchart handout, is a good indicator that

switching to the screencast was a positive step, and led to improved student learning.

### **A Solution Along With the Problem**

- “I am still confused on how to write an end note. Maybe next time you could write out an example.”

This is another example of a comment that is representative of a wide variety of comments from the same class. In this case, the class in question was a business course, in which the faculty member insisted on the students not using standard APA- or MLA-style citations, but nevertheless documenting their sources in a format appropriate to business correspondence. Since this was, for most students, their first business course, and the faculty member did not provide any examples himself, this understandably caused a considerable amount of confusion for the students. That confusion often manifested itself in the minute paper assessments.

Since this was a course I worked with on a regular basis, I was already quite familiar with the students’ confusion, and had suggested several times to the faculty member that he might want to consider providing some example citations for the students. This particular comment was precisely the information I needed in order to move ahead with a plan to provide those example citations myself, rather than wait for the faculty member to provide them. In this case, therefore, the information from the assessment lead directly to a small but significant change in teaching that helped to improve student learning.

### **Students Will Think the Assessment Is an Evaluation**

- “You did great at covering all of the material.”
- “You did a wonderful job! Much appreciated!”
- “Did good.”

Students are so used to being asked to complete teaching evaluations that, even when they are specifically directed to do otherwise, they will occasionally assume that the assessment is asking for standard satisfaction information, and will provide exactly that information. There is very little that can be done about this, at least until students become more accustomed to classroom

assessment techniques in general. Anecdotal experience suggests that these comments are almost always positive, so while they don’t provide useful information to the librarian, they rarely cause problems either.

### **Repurpose the Data: Sharing Assessments with Faculty**

An additional benefit to the minute paper classroom assessment tool is that, once the results are transcribed into an electronic document, they are easily shared with the teaching faculty. This can open up new lines of communication between librarians and teaching faculty and offer new insights to teaching faculty about their students’ information literacy skills (or lack thereof). Unlike standard course evaluations, minute paper assessments, as well as other classroom assessment tools, provide clear evidence of areas where students are confused or uncertain. Librarians can use this evidence to suggest follow-up contacts with students or clarify points of confusion. In institutional contexts where librarians are trying to increase contact and collaboration with teaching faculty, assessment data can be an important tool for opening doors to further collaboration.

Assessments can also help to provide teaching faculty with a realistic picture of where their students’ information literacy skills are strong and where they need additional help. As we have seen above, a task as simple as locating a print journal article in the library can be a significant challenge for students. For faculty who have internalized the research process over the course of many years (and who may have learned certain skills at earlier educational levels than today’s students), it can be hard to remember how difficult even basic tasks are for beginning undergraduates. Assessment data can provide a useful reminder.

### **Conclusion**

There is, of course, a time and a place for course or teaching evaluations. If you truly do need to know whether students were satisfied with a particular session, then a course evaluation, particularly one that highlights the most explicitly satisfaction-oriented questions, is precisely the right tool. Likewise, if administrative regulations require the use of a standardized evaluation instrument for one-shot library sessions, then of course that evaluation tool will be necessary. It

may still be possible, however, to use a minute paper or other similar classroom assessment technique in addition to the evaluation instrument.

At the same time, many classroom assessment techniques do not provide quantitative data, so in situations where statistical analysis is necessary, some form of quantitative measure will be required. It is also true that the minute paper, and other informal classroom assessment techniques, do not always answer specific questions about whether students learned a *particular* piece of information or a particular skill. In situations where it is necessary to document whether and how well students learned specific skills or concepts, the minute paper may be replaced by or transformed into a short quiz, as Choinski and Emanuel did in their recent work on outcomes assessment.<sup>12</sup> However, for librarians seeking to improve their own teaching in the day-to-day service of student learning, the minute paper assessment provides better and richer data.<sup>13</sup>

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## Notes

1. Robert E. Wright, "Student Evaluations of Faculty: Concerns Raised in the Literature, and Possible Solutions," *College Student Journal* 40, 2 (June 2006): 417.
2. Peter Hernon and Robert Dugan, "Assessment and Evaluation: What Do the Terms Really Mean?" *College and Research Libraries News* 70, 3 (March 2009): 146-149.
3. For additional examples of library instruction evaluation forms, see Lawrie Merz and Beth L. Mark, eds., *Assessment in College Library Instruction Programs*, CLIP Note 32 (Chicago: American Library Association, 2002).
4. Elizabeth Choinski and Michelle Emanuel, "The One-Minute Paper and the One-Hour Class: Outcomes Assessment for One-Shot Library Instruction," *Reference Services Review* 34, 1 (2006): 149.
5. For a review of the literature surrounding problems with course evaluations, see Wright, "Student Evaluations of Faculty."
6. Jane Barton, Richard German, and Nick Joint, "Beyond the Happy Sheets! Evaluating Learning in Information Skills Teaching," in *Library Management in Changing Environment: Proceedings of the 2004 International Association of Technological University Libraries Conference, May 30-June 3, 2004* (presented at the International Association of Technological University Libraries, Krakow, Poland: International Association of Technological University Libraries, 2006), 4, [http://www.iatul.org/doclibrary/public/Conf\\_Proceedings/2004/Richard20German.pdf](http://www.iatul.org/doclibrary/public/Conf_Proceedings/2004/Richard20German.pdf).
7. Curt Friehs and Cindy Craig, "Library Instruction Evaluation: Measuring Sin an Increasingly Complex Electronic Environment," *Brick and Click Libraries Symposium Proceedings* (November 3, 2006): 124.
8. Thomas A. Angelo and K. Patricia Cross, *Classroom Assessment Techniques: A Handbook for College Teachers* (San Francisco: Jossey Bass, 1993).
9. Choinski and Emanuel, 150. For an extensive review of the literature surrounding the use and effects of the one-minute paper, see David R. Stead, "A Review of the One-Minute Paper," *Active Learning in Higher Education* 6, 2 (2005): 118-131.
10. Angelo and Cross, 148-153.
11. Asking students whether they felt that there was too much, not enough, or just the right amount of time set aside for independent work is a different matter, but that is not what many evaluations ask.
12. Choinski and Emanuel.
13. The author wishes to thank Marianne Aldrich and Laura Crossett for invaluable advice and assistance in preparing this article.