How Good is Your Multiple-Choice Test? Find Out by Using Item Analysis
Workshop Evaluation Report

Executive Summary:
As part of the Spring 2013 Making Program Learning Assessment Happen workshops, the Assessment Office (AO) offered a workshop called How Good is Your Multiple-Choice Test? Find Out by Using Item Analysis Data on March 1, 2013. The workshop was led by Yao Hill and assisted by Monica Stitt-Bergh. The workshop was advertised as a beginner-level workshop suitable for faculty and assessment coordinators looking to increase their understanding of how each test question (item) matches the level of the learning that they expect of the students. The format of this workshop was a demonstration with hands-on practice.

Thirteen participants participated in the workshop. Eleven participants completed and submitted an evaluation survey (85% response rate). Overall, respondents found the workshop useful and effective in increasing their understanding of how to use item analysis to better measure student learning.

1. State the SLO(s) that was Assessed, Targeted, or Studied

Evidence was collected on the extent to which participants achieved the learning outcomes and the extent they were satisfied with the usefulness and effectiveness of the workshop in relation to the workshop outcomes: (a) the basic concepts: item difficulty, difference index, B-index, distractor analysis; (b) how to conduct item analysis using formulas in Excel; (c) item analysis in pre- and post-test scenarios and achievement test scenarios; and (d) how to interpret item analysis results. Two quiz questions were used to directly assess whether participants learned to interpret item analysis results. An evaluation form was used to determine if the workshop was effective in teaching participants how to use item analysis.

2. State the Type(s) of Evidence Gathered

The facilitator distributed a paper evaluation form with two quiz questions.

3. State How Many Pieces of Evidence Were Collected

Out of the 13 who attended the workshop, 11 completed and submitted an evaluation survey (85% response rate).

4. State How the Evidence was Interpreted, Evaluated, or Analyzed

The workshop facilitator scored the item analyses questions. The workshop facilitator used descriptive statistics to examine the learning gain on each outcome and summarize closed-ended questions. The facilitator identified themes from a close reading of the open-ended responses on valuable/least valuable aspects and other constructive comments.
5. **Summarize the Actual Results**

100% of the participants who completed the evaluation forms successfully answered the quiz questions – evidence that they were able to correctly interpret item analysis results.

*Workshop Participant Evaluation results*

- 9 out of 11 participants (82%) said the workshop was ‘Very Useful’, and 2 participants (18%) said it was ‘Useful’.
- 8 out of 11 participants (73%) said the workshop was ‘Very Effective’, and 3 participants (27%) said it was ‘Effective’.
- Overall, the majority of the participants found the workshop very helpful. They mostly appreciated the Excel practice, the demonstration of analysis and interpretation, and simple delivery manner.
- 100% of the respondents reported that the workshop was useful and effective.

Detailed results are presented in Appendix A.

6. **In addition to the actual results, were there additional conclusions or discoveries?**

   No.

7. **Use of Results/Program Modifications:**

   Respondents mostly appreciated the hands-on practice, analysis and interpretation demonstration, and delivery using simple language and examples. These features should be continued. In addition, more time should be made for Excel practice as recommended by three respondents.

   The facilitator can clarify participants’ expectations that the workshop will focus on simple statistical analysis of items with the assumption of no prior knowledge on the topic nor prior experience with Excel formula. This is because one respondent thought the workshop would discuss how to word multiple-choice questions, one already knew Excel formula, and one thought the workshop was very simplistic.

8. **Reflect on the Assessment Process**

   The combination of direct assessment and participants’ perception seem to work well.

8. **Other Important Information.**

   None.
Appendix A. Responses to Open- and Closed-Ended Questions

Stem: Overall usefulness of the workshop

<table>
<thead>
<tr>
<th>Response Item</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Useful</td>
<td>9</td>
</tr>
<tr>
<td>Useful</td>
<td>2</td>
</tr>
<tr>
<td>Of Little Use</td>
<td>0</td>
</tr>
<tr>
<td>Not Useful At All</td>
<td>0</td>
</tr>
<tr>
<td>No Opinion</td>
<td>0</td>
</tr>
</tbody>
</table>

Stem: Workshop effectiveness in increasing understanding

<table>
<thead>
<tr>
<th>Response Item</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Effective</td>
<td>8</td>
</tr>
<tr>
<td>Effective</td>
<td>3</td>
</tr>
<tr>
<td>Somewhat Effective</td>
<td>0</td>
</tr>
<tr>
<td>Not Very Effective</td>
<td>0</td>
</tr>
<tr>
<td>Not Sure</td>
<td>0</td>
</tr>
</tbody>
</table>

Most valuable aspect of the workshop

- simple use of excel instead of other software
- Excel practice exercise
- step by step intro & discussion of analysis
- understanding item analysis
- The info on how to evaluate quality of questions & why they are good or bad
- the combination of theory and practical example/exercises
- learning the various terms & some simple ways to analysis test results.
- explanations of terminology done in a very simple way. Made sense. Use of excel & formulas used
- To see the data and how it reflects the analysis, visually.
- learning how to determine effectiveness of distracters will help me ID questions I need to tweak.
- worksheet demos.
Least valuable aspect of the workshop
- I thought we were really going to look at making/wording multiple choice. Expectations were different, but I still learned something. Thank you!
- none
- N/A
- I already know how to do formulas in excel so didn't need as much time on that
- I did understand the last section on test analysis programs - needed more time & simplified example.
- none
- very simplistic.

Other constructive comments
- Look @ above #6
- wish the class was a little longer during the practice.
- There should be a workshop on TAP!
- extremely clear and well paced.
- Great Job :)
- very helpful...thank you!
- Mahalo!
- You made it simple enough to understand it.
- Needed more time to perform excel spreadsheet calculations.