Overview

The main purpose of the reports generated by the AACR AutoReporter is to provide instructors with a large view of what ideas students invoke when responding to questions posed in class. While not intended for grading of individual responses, getting

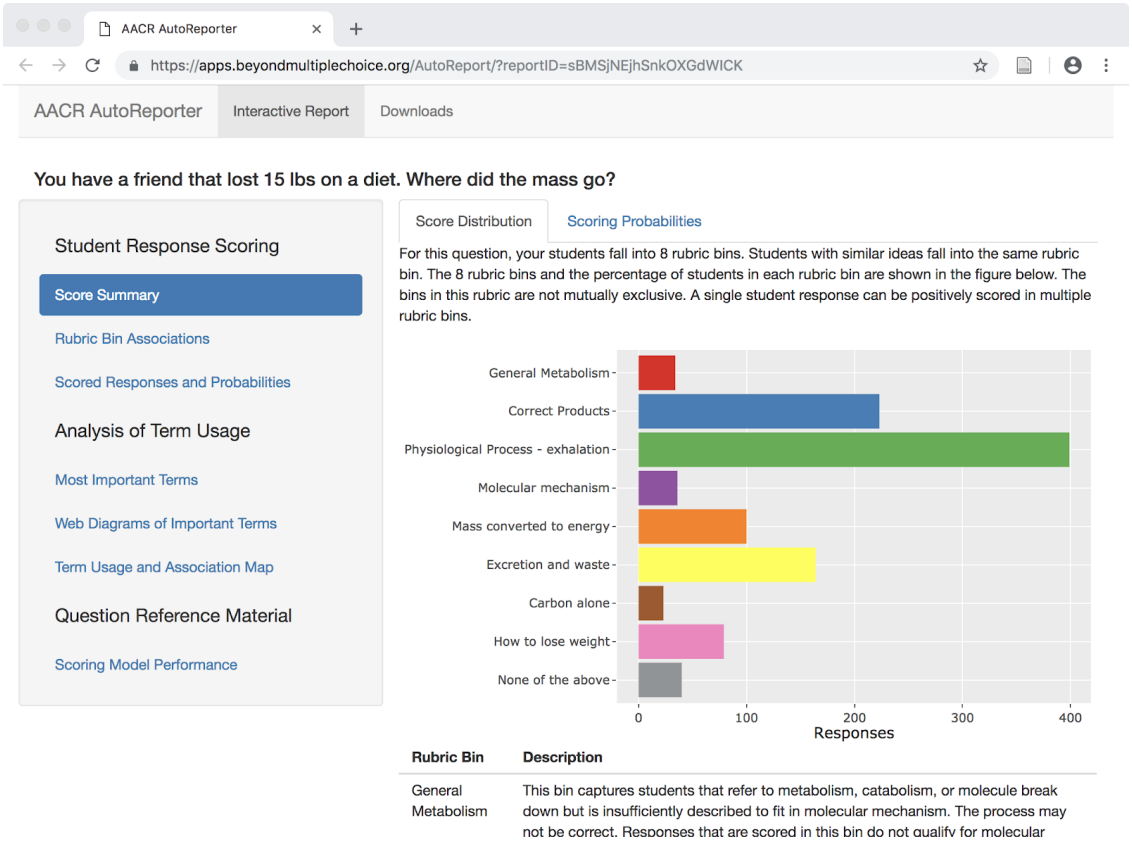
The Automated Analysis of Constructed Response (AACR) research group creates computer models that can automatically score large numbers of student written responses. This guide includes instructions for using the output from the AACR models to make instructional decisions including descriptions of two of the basic data visualizations as well as procedures for downloading predicted scores, and feedback reports.

Using the interactive report to analyze the data from your class responses

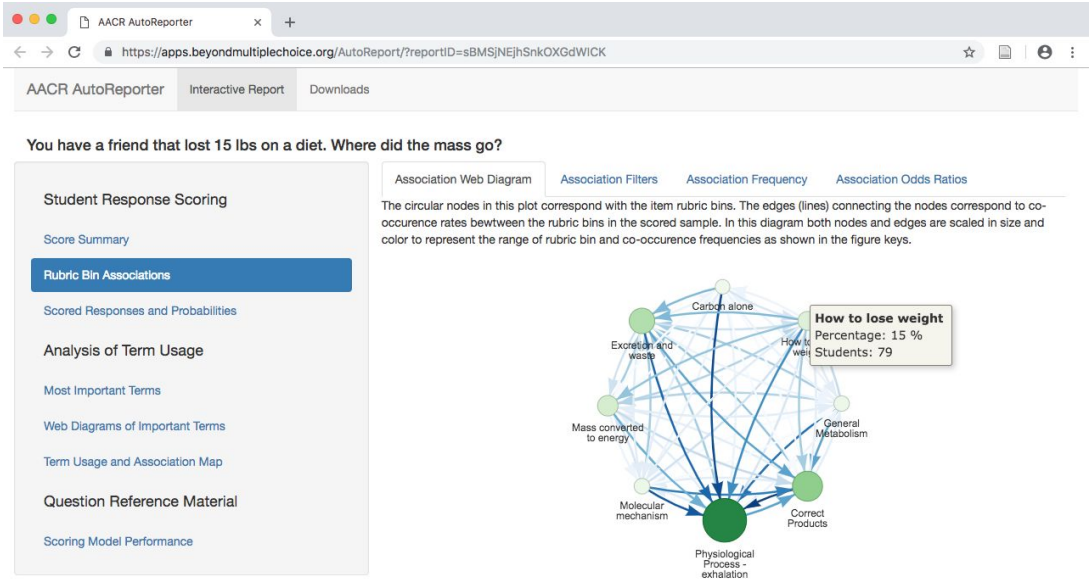
This section describes two ways to visualize ideas included in responses at the class-wide level. The AACR scoring models use an analytic rubric, where each rubric bin captures an idea. Each student response can be classified into zero or more rubric bins. For example, the Weight Loss question contains eight rubric bins. One bin is 'Correct products' which captures the inclusion of CO_2 as a product of respiration in a student response, another is 'How to lose weight' which captures the inclusion of general dieting strategies. Detailed descriptions for each rubric bin can be found on the initial report page.

1. After you have run your student responses through the AACR AutoReporter, you will receive an email from aacr.report@gmail.com that contains a unique link to your report. (Please do not respond to this email, it is not a monitored account). You should retain this email for future access to this report so you do not need to resubmit your students' data.

2. Clicking on the link in the email will bring you to a page (example below) containing the results of the report for your students. At the top of the page, you will see the wording of the question.
    a. On the left, you will see links to other pages in the report that allow you to visualize the analysis of your student responses in several ways.
    b. The default view is the Score Summary. This graph gives you an overview of the proportions of responses scored in each rubric bin.
    c. Below the graph, scroll down to read the description of each of the rubric bins.

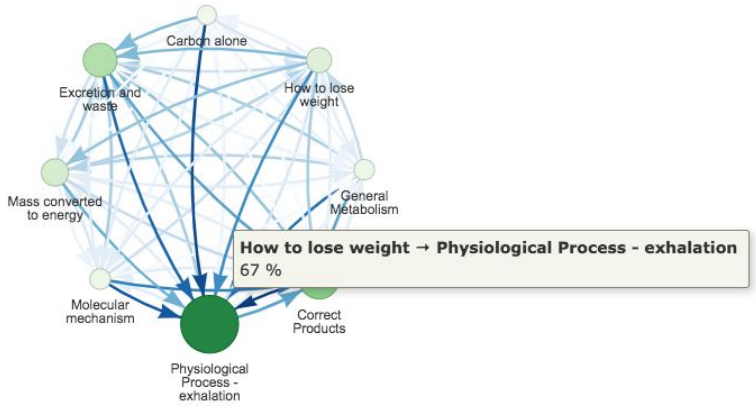


3. To see co-occurrence of ideas within your students' responses, click on Rubric Bin Associations. A page containing an Association Web Diagram will load (example below).



a. In the Association Web Diagram, each rubric bin is depicted by a circular node and the co-occurrence rates between rubric bins are depicted by lines connecting the nodes. The sizes of both lines and nodes are proportional to the frequency of co-occurrence and number of responses in that bin, respectively.
b. If you hover your cursor over a node, you will be able to see the percentage and number of student responses that were scored as that rubric bin. In the example above, 15% of student responses were scored as 'How to lose weight'.

c. If you hover your cursor over a line, you will be able to see the percentage of responses that included ideas scored in each of the two linked rubric bins. In the example below, 67% of student responses that were scored as 'How to lose weight' also were scored as 'Physiological Process – exhalation'.

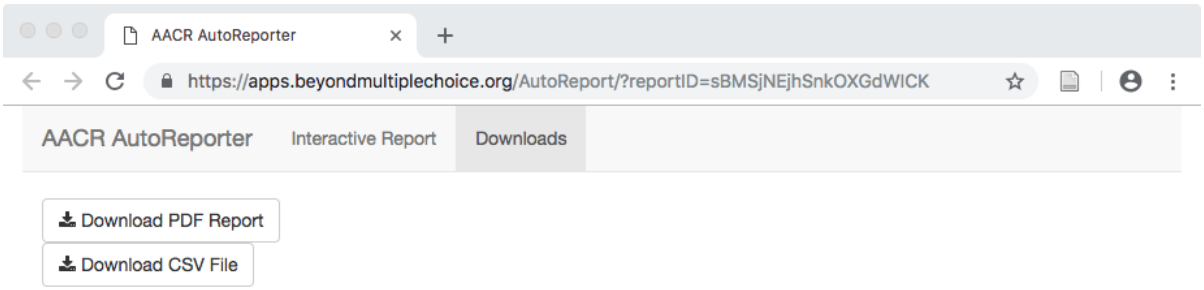


4. There are several other ways to view the information in the report. Find these by clicking on the links at the left and the tabs along the top of the diagrams. A short description of how each graphic represents the data is presented with each diagram.

<u>To download predicted scores for each student response:</u>

This section describes the process used to re-associate the scores from each model with individual student identifiers. You may wish to do this to see what ideas were included in each students' response. The models use probabilities to assign the most likely score for each response in every bin, so we do not recommend using the results of the computer model predictions to assign grades to students.

1. At the top of the report webpage, click on Downloads. This will take you to the following page:



1. Click <u>Download CSV File</u>. The default filename is a shorthand name of the question; save to your computer with a filename and in a location you will remember.

2. Open the file in Excel. The file will contain a Student Response Column followed by columns for each rubric bin score and probability that the response falls in that bin. A "1" in the score column indicates that the model assigned the response a positive score for that rubric bin, a "0" indicates that the machine did not assign that response to that bin. Each predicted score is also given a probability between 0 and 1 where 1 is the highest probability that the rubric bin was assigned a correct score.

3. The downloaded file will contain responses in the same order as the initial uploaded file. To associate the scores with student IDs or emails, copy the entire downloaded table and paste it into your original spreadsheet or document text to the student IDs and responses.

To download a PDF copy of the AACR Feedback Report:

AACR Feedback reports are best viewed as interactive webpages, but there is the ability to produce PDF files for download to your computer. These PDFs contain the Score Summary and Web Diagram, as well as other ways to interpret the report including Association Frequencies and Odds Ratios. If you are interested in the statistics and computer scoring details, you will find these in the report as well.

To Download: From the download tab, click Download PDF Report. The default name is a shorthand name of the question; save to your computer with a filename and location you will remember.

Troubleshooting

If your report does not appear to be consistent with the student responses you submitted (e.g. if most responses are in the category 'None of the above'), check the top of the first page of the report; it will contain the text of the question for the report. If this is the wrong question, click on the link for the correct question and resubmit your data there.

NOTE: if you run into issues that you cannot solve using this guide, please contact M. M. Santiago at mercad23@msu.edu. We will do our best to respond to your request within 48 working hours.