Session Outcomes

• Use at least one data collection tool
• Use best data presentation strategies
• Open to new technologies but keep a healthy skepticism
  – Experiment with at least one technology related to data collection, analysis, & presentation.
  – Share the limitations with peers

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Session Agenda

1. Introduction of data collection tools
2. Excel practice on summarizing data in a table and a chart
3. Individual exploration

Data Collection Needs

• Students:
  – Quiz/Test questions
  – Survey responses
• Faculty:
  – Rubric ratings from multiple raters
  – Tallies of the number of students who achieved each level of SLO

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Data Collection Concerns

• CONFIDENTIALITY
• Motivating people to respond
• Ease in
  – collecting
  – analyzing
  – retrieving
  – storing

Common Survey Tools

• Google Form (part of Google Drive)
• SurveyShare (www.surveyshare.com)
• SurveyMonkey (www.surveymonkey.com)
• Qualtrics (www.qualtrics.com)
Survey Tool Evaluation Resources


Data Collection Tool Tutorials

• Google Form (http://www.youtube.com/watch?v=xEY10Ub-k-U)
• SurveyShare (http://www.youtube.com/watch?v=wIT_VkJQ3YA)
• SurveyMonkey (http://help.surveymonkey.com/?l=en_US)
• Qualtrics (http://www.youtube.com/watch?v=4ukfq1QPGG4)

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GOOGLE FORM DEMONSTRATION

Purpose: collect rubric ratings from the raters
Context: raters understand the rubric categories. They know which student links to which ID.

• Final product:
  - https://docs.google.com/a/hawaii.edu/forms/d/15qH1J15G-F1GzxOoPg1yRVUe6aVbo0nmULxgLklMzKr8/viewform
  - https://docs.google.com/a/hawaii.edu/forms/d/1XiNPYrblO8QxkyQp4k5Y48IBJsgF2qIIQ02s8-wa9U/viewform

• Tutorial: http://youtu.be/CYSrmz03oPU

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Other Data Collection Tools

• Google Drive (demonstration)
• Socrative student, Socrative teacher
• Dropbox (dropbox.com)
  – Introduction: http://www.youtube.com/watch?v=OFb0NaeRmdg

Cloud Storage Considerations

• Security! Security! Security!
• Put sensitive information in an encrypted folder before uploading to the cloud.
• Encryption tool: TrueCrypt at truecrypt.org
DATA ANALYSIS & PRESENTATION

Data Analysis

• Reliability done? If not, ask Yao to run the numbers.
• Numbers
• Percentages
• Aggregate
• Disaggregate

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SUMMARIZING DATA INTO A TABLE

Excel Hands-on Activity

Data file

• 5 respondents
• 5 survey items
  1. Topics are useful.
  2. Topics are relevant.
  3. Materials are useful.
  4. Time allocation for each activity is just right.
  5. Presenters have poor presentation skills (RC).
• Ratings: 1 = strongly disagree; 5 = strongly agree
Steps (Demonstration)

1. Check data: Find minimum, maximum, and the total count:
   \[=\text{MIN}(\text{array}), =\text{MAX}(\text{array}), =\text{count}(\text{array})\]

2. Calculate the count for each option category using:
   \[=\text{countif}(\text{range},\text{criterion})\]
   Example: \[=\text{countif}(B2:B6,1)\]

3. Calculate the percentage for each option category
4. Copy the header and Paste Special \(\rightarrow\) Transpose
5. Copy the formula and Paste Special as Values & Transpose
6. Calculate the percentage of students who met the criteria.
7. Make a table with two columns: Item and % meeting criteria

<table>
<thead>
<tr>
<th>Item</th>
<th>% Agree</th>
</tr>
</thead>
</table>

Step 1: count each option

- Label each option in the first column
- Example

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>2</td>
<td>Somewhat Disagree</td>
</tr>
<tr>
<td>3</td>
<td>Neutral</td>
</tr>
<tr>
<td>4</td>
<td>Somewhat Agree</td>
</tr>
<tr>
<td>5</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

- In the cell next to the first label “1” type: \[=\text{countif}(B2:B6,1)\]
- In the cell next to the label “2” type: \[=\text{countif}(B2:B6,2)\]
- Repeat the step for all the options.
- Copy the formula and paste under the rest of the items.
Step 2: Calculate % for each option

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ID</td>
</tr>
<tr>
<td>5</td>
<td>104</td>
</tr>
<tr>
<td>6</td>
<td>105</td>
</tr>
<tr>
<td>7</td>
<td>MIN</td>
</tr>
<tr>
<td>8</td>
<td>MAX</td>
</tr>
<tr>
<td>9</td>
<td>COUNT</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>15</td>
<td>% 1</td>
</tr>
<tr>
<td>16</td>
<td>% 2</td>
</tr>
</tbody>
</table>

$ \rightarrow $ anchor

= B10/B$5

Format the cell into “Percentage”

- On the Home tab, in the Number group, Click the arrow next to the Number Format box, and click Percentage.
- Get to Number Format box, click “More Number Formats.”
- In the pop-up window, type “0” as the decimal place.
- Or choose “%” and icon in the ribbon.
Step 3: Transpose the header

- Select the header in the first row.
- Copy the header: Ctrl + C
- Point to a space that you want to paste.
- Click the down arrow key under “Paste,” and “choose Paste Special.”
- Check “Transpose” in the pop-up window.
- Or
Step 4: Transpose the values

- Select the percentages and copy them (Ctrl + C)
- Point to the cell where you want to paste.
- In the Home tab, in the Clipboard group, click Paste and select Paste Special
- Click Values and number formats and check Transpose, and then click OK.

Results so far

<table>
<thead>
<tr>
<th></th>
<th>% 1</th>
<th>% 2</th>
<th>% 3</th>
<th>% 4</th>
<th>% 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item1</td>
<td>20%</td>
<td>0%</td>
<td>20%</td>
<td>60%</td>
<td>0%</td>
</tr>
<tr>
<td>Item2</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>Item3</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>Item4</td>
<td>20%</td>
<td>0%</td>
<td>60%</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>Item5_RC</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>20%</td>
<td>80%</td>
</tr>
</tbody>
</table>

Problem with presenting a table like this:
- Too many numbers
- Information not interpretable
- Need to specify N
Step 5: Calculate % agree

- Add up the percentages under option 4 and 5 → % agree

\[
\begin{array}{ccc}
% 4 & % 5 & \% \text{ Agree} \\
60\% & 0\% & = L4 + M4 \\
\end{array}
\]

- Copy and paste the formula to the rest of the rows.
- In another area on the spreadsheet, label the items.
- Copy all the “% Agree” values and Paste them next to the item labels as Values and Number Formatting.

Results so far

<table>
<thead>
<tr>
<th>Item</th>
<th>% Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material Usefulness</td>
<td>60%</td>
</tr>
<tr>
<td>Topic Relevance</td>
<td>80%</td>
</tr>
<tr>
<td>Appropriate Time Allocation</td>
<td>60%</td>
</tr>
<tr>
<td>Good Presentation Skills</td>
<td>20%</td>
</tr>
<tr>
<td>General Usefulness</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note:
(1) number of respondents = 5
(2) \% Agree = percentage of respondents who chose "Somewhat Agree" or "Strongly Agree"
Sort the % Agree values

1. Go to the Home tab, in the Editing group, click Sort & Filter.
2. In the drop-down menu, click Custom Sort.
3. In the Sort pop-up window, check My data has headers; choose “% Agree” to Sort by. Select Largest to Smallest under Order.

Table Presentation Tips

• Have as few columns as possible
• Present essential information
• Round the percentages to the nearest whole number
• Arrange items in a logical order
• Put the more detailed table in the appendix for “detail oriented” readers
Steps to create a chart

1. Select the cells with data and the header.
2. Go to the Insert tab, in the Charts
3. Click Column chart type, and then click the first subtype — 2D clustered column
4. Format the chart as desired

It looks like this:

![Chart Image]

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Tips on chart formatting

• Make the range of the y-axis cover the possible range (i.e., 0 to 100%)
• Add data labels
• Delete the grid lines
• Delete the axis
• Delete the legend
• Change the title

Change axis range

• Right click on the y-axis. Choose **Format Axis** at the bottom of the pop-up menu.
• Select **Fixed** for **Maximum** and type “1” next to it.

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Add data labels

- Right click on one of the value bars.
- Choose Add Data Labels in the pop-up menu.

Cleaned up chart

Workshop Evaluation Results

N = 5

- 100% General Usefulness
- 80% Topic Relevance
- 60% Material Usefulness
- 60% Appropriate Time Allocation
- 20% Good Presentation Skills

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Chart Presentation Tips

- Do NOT use a three dimensional chart
- Avoid unnecessary/information
- Think ink-to-information ratio
- Informative with a clear title and data labels

EXPLORATION OF NEW TECHNOLOGY

Explore one technology that you haven’t used before. Describe it’s function and use in Laulima Forum. Check out the “Apps list” handout in Laulima.

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## Tablet Apps for Data Collection, Sharing, Grading, and Data Presentation

(Price was checked on 8/10/2013)

### iOS only

<table>
<thead>
<tr>
<th>App Name</th>
<th>Price</th>
<th>Description</th>
<th>URL</th>
</tr>
</thead>
</table>

### Android only

<table>
<thead>
<tr>
<th>App Name</th>
<th>Price</th>
<th>Description</th>
<th>URL</th>
</tr>
</thead>
</table>

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### Grade Rubric. (Free)
Create and save multiple rubrics (with no descriptors). Can set maximum score for numeric items, and number of rubric categories. The average results will be immediately calculated and sent to students through email.

Both

<table>
<thead>
<tr>
<th>Attendance.</th>
<th>Simple attendance marking app.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Socrative Clicker. (Free)</th>
<th>Like iClicker, but with a web interface. This could be used to take instant surveys in class without requiring students to purchase an iClicker. Students can download the apps for iOS or Android or access a website from their laptop or smartphone.</th>
</tr>
</thead>
<tbody>
<tr>
<td>iOS (free): Student Clicker</td>
<td><a href="http://appshopper.com/education/socrative-student">http://appshopper.com/education/socrative-student</a></td>
</tr>
<tr>
<td>iOS (free): Teacher Clicker</td>
<td><a href="http://appshopper.com/education/socrative-teacher">http://appshopper.com/education/socrative-teacher</a></td>
</tr>
</tbody>
</table>
**Dropbox.** (Free)
Upload and share files. Create a shared folder that can be accessed from anywhere with an Internet connection. Use this to easily share files of any size between faculty members to facilitate collaboration on assessment.

**Foxit Mobile PDF.**
PDF reading and annotation.