Instructional Design for Data-Driven Assignments

Instructional Design Support Modes
- One-on-one consultation between instructor and Instructional Designer
- Small- or large-group workshops
- Instructional support documents
- Identification of recommended resources and/or technologies

Instructional Design Process
1. Identify course objective assignment measures
2. Define assignment with description/prompt
3. Determine points/value of assignment in syllabus
4. Create grading rubric to score assignment
5. Plan scaffolding activities (within and leading to assignment)
6. Curate/create materials (data sets, links, samples/models)
7. Implement assignment
8. Debrief assignment with self and students
9. Plan changes to assignment based on debrief
10. Implement assignment again next semester

Common Patterns in Assignment Design Support for Data-Driven Assignments
- Chunking/scaffolding – breaking up instruction into discrete steps that follow each other and aid the student to build competency in a new skill
- Creating assessment rubrics – devising grading tools that assist the student in understanding assignment expectations and assist the instructor in rapid, fair grading
- Flipping resources/active learning – providing instructional content to aid students in building basic skills or learning knowledge, delivered asynchronously before class meetings. During class meetings, students can apply the skills they learned.

Essential Elements in Data-Driven Assignments
- Finding data sources/sets
- Reading and interpreting data
- Analyzing data
- Visualizing and representing data
- Communicating results

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Data-Driven Assignment Examples
Chunking/scaffolding example from JOUR 477/Web Analytics for News and Nonprofit Organizations, Dana Chinn, USC Annenberg School of Journalism

- Assignment 1: Introduction to basic Google Analytics metrics, what they are, and how they are counted
- Assignment 2: Introduction to basic Excel calculations and formats
- Assignment 3: Download raw data from Google Analytics, perform basic calculations on the data in Excel, and create simple charts
- Assignment 4: Retrieve traffic source data from Google Analytics, analyze using Excel charts and tables, and make recommendations based on analysis
- Assignment 5: Analyze Google Analytics keyword data in Excel, including new calculations and a pivot table; and produce a Word document with extended analysis

Student presentation assessment rubric example from POSC 437/Mass Media and Politics, Ann Crigler, Professor Chair, Political Science

<table>
<thead>
<tr>
<th>Organization</th>
<th>Below Expectations 5 pts</th>
<th>Approaches Expectations 10 pts</th>
<th>Meets Expectations 15 pts</th>
<th>Exceeds Expectations 20 pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class cannot understand presentation because there is no sequence of information.</td>
<td>Class has difficulty following presentation because students jump around.</td>
<td>Students presented information in logical sequence which class could follow.</td>
<td>Students presented information in logical, interesting sequence which class could follow.</td>
<td></td>
</tr>
<tr>
<td>Subject Knowledge</td>
<td>Students do not have a group of information; students could not answer questions about subject.</td>
<td>Students were uncomfortable with information and were able to answer only rudimentary questions.</td>
<td>Students were at ease with expected answers to all questions, but failed to elaborate.</td>
<td>Students demonstrated full knowledge (more than required) by answering all class questions with explanations and elaboration.</td>
</tr>
<tr>
<td>Coverage of Topic</td>
<td>Students did not discuss all readings or engage syllabus questions.</td>
<td>Students discussed assigned readings and engaged syllabus questions in basic way.</td>
<td>Students discussed more than assigned readings and engaged syllabus and additional questions somewhat</td>
<td>Students creatively and critically reviewed and discussed more than required readings, engaged with add'l thought provoking questions or exercise</td>
</tr>
<tr>
<td>Graphics/Examples (G/E)</td>
<td>Students used superficial graphics/examples or no G/E</td>
<td>Students occasionally used G/E that rarely supported points of presentation.</td>
<td>Students' G/E related to Students' G/E explained and reinforced points of presentation.</td>
<td></td>
</tr>
<tr>
<td>Presentation</td>
<td>Group/individual seemed unprepared and were not engaging with the audience. Duties unclear or missing &amp; transitions are rough.</td>
<td>Group/individual was better prepared but still not engaged. Unequal duties and rough transitions among team members.</td>
<td>Group/individual was somewhat prepared and fairly engaging. Somewhat unequal duties and okay transitions.</td>
<td>Group/individual was well prepared and very engaging with the audience. Equal duties &amp; seamless transitions among team members.</td>
</tr>
</tbody>
</table>

Flipping resources example from PPD 373/Public Policy and Planning Analysis, Jennifer Miller, Assistant Professor (Teaching), Price School of Public Policy

<table>
<thead>
<tr>
<th>lynda module</th>
<th>number</th>
<th>time</th>
<th>question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction/Welcome</td>
<td>0.1</td>
<td>0.00:43</td>
<td>Which version of the lynda.com tutorial will you be completing?</td>
</tr>
<tr>
<td>Introduction/Using the Exercise files</td>
<td>0.2</td>
<td>0.00:23</td>
<td>How do you access the Exercise files for the lynda.com tutorial?</td>
</tr>
<tr>
<td>What is Excel used for?</td>
<td>1.1</td>
<td>0.01:49</td>
<td>Excel is a giant of ____ and _____. (Type the e)</td>
</tr>
<tr>
<td>Using the menu system</td>
<td>1.2</td>
<td>0.04:30</td>
<td>Which of the following is not on Excel's menu ribbon?</td>
</tr>
<tr>
<td>The structure of a worksheet or workbook</td>
<td>1.4</td>
<td>0.03:14</td>
<td>How are the terms row and column used in Excel? Rows are nyal.</td>
</tr>
<tr>
<td>Using the formula bar</td>
<td>1.5</td>
<td>0.01:43</td>
<td>What does the formula bar allow you to see?</td>
</tr>
</tbody>
</table>
| Shortcut menus and the Mini Toolbar | 1.8 | 0.03:24 | Which of the following options is on the shortcut menu that ap