CREATING Changing Criterion and Parametric Analysis
SINGLE-SUBJECT DESIGN GRAPHS IN MICROSOFT EXCEL 2007
Step 1: Set up the Variables (X & Y-Axes)

Changing Criterion design

Use the second row of cells to Label the variables that will be displayed on both the X and Y-Axes of the graph
Step 1: Set up the Variables (X-Axis)

Changing Criterion design

Enter X-axis label in this cell
For example:

- If you are graphing data for each day enter, “Date” in this cell
- If you are graphing data for each trial, enter “Trial” in this cell
- If you are graphing data for each session, enter “sessions”
Step 1: Set up the Variables (X-Axis)
Changing Criterion design
Step 1: Enter the data (X-Axis) Changing Criterion design

Enter the dates, or trial or session numbers in the column below the “X-Axis” label.
Step 1: Set up the Variables (Y-Axis)

Changing Criterion design

For Changing Criterion designs, Enter Y-Axis labels for Baseline and the levels of the Intervention (levels of IV). For example, the intervention is centered on top of the levels of the IV
Step 1: Set up the Variables (Y-Axis)

Changing Criterion design

For example, we are using DRH (Differential Reinforcement of Higher Rates of Behavior) to increase “On Task” behavior of a student. DRH has 7 levels that represent the amount of time the student must remain on task. The levels are 3, 4, 5, 6, 8, 10 and 15 min. Thus, we label cells (C2 –I2) so that they represent the levels of DRH.
Step 2: Enter the Data (Y-Axis) Changing Criterion design

Underneath the “Baseline” phase (cell B2) enter the data that correspond to the dates (or session/trial #s). For example, the following is baseline data for duration of “On task” in min. before DRH (IV) was implemented:

<table>
<thead>
<tr>
<th>Date</th>
<th>Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-Nov</td>
<td>3</td>
</tr>
<tr>
<td>11-Nov</td>
<td>2</td>
</tr>
<tr>
<td>12-Nov</td>
<td>3</td>
</tr>
<tr>
<td>13-Nov</td>
<td>3</td>
</tr>
<tr>
<td>14-Nov</td>
<td>2</td>
</tr>
</tbody>
</table>
Step 2: Enter the Data (Y-Axis) Changing Criterion design

1. Enter the data for the first level of the intervention starting from cell (C8) until the criterion we set is met (in this case 3 days in a row remaining on task for 3 min)

2. Set criterion is met. We are ready to move to 4 min
### Step 2: Enter the Data (Y-Axis) Changing Criterion design

1. Enter the data for the second level of the intervention starting from cell (D12) until the criterion we set is met (in this case 3 days in a row remaining on task for 4 min.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Baseline</th>
<th>3 min</th>
<th>4 min</th>
<th>5 min</th>
<th>6 min</th>
<th>8 min</th>
<th>10 min</th>
<th>15 min</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-Nov</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-Nov</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-Nov</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13-Nov</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14-Nov</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-Nov</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-Nov</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-Nov</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-Nov</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-Nov</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-Nov</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-Nov</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22-Nov</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Set criterion is met. We are ready to move to 5 min
Step 2: Enter the Data (Y-Axis) **Changing Criterion design**

Enter Data points for the remaining levels of IV
Creating the line Graph
Step 3: Create the Line Graph **Changing Criterion Design**

- Position the mouse on cell A3
- Click and hold the left mouse button
- Move the mouse until all the data points are highlighted
- Release the left button
Step 3: Create the Line Graph

- Click on Insert
- Line
- Chose the circled line graph above
Step 3: Create the Line Graph

- You now have your line graph and you can begin editing the
Step 4: Formatting Line Graph

- Begin by deleting the legend (right click and push delete)
Step 4: Formatting Line Graph

- Select the first data series (baseline) by clicking on one of the data points (first line graph)
- Then go to Format and select Shape Outline to change the color to black (see above)
Step 4: Formatting Line Graph

- Then go to Shape Fill to make the data points black
- Repeat these steps for the other data series
Step 4: Formatting Line Graph

- Now click anywhere on the graph and go to Format. On the left where it says Plot Area, select Series 1
Step 4: Formatting Line Graph

• Then go to Format Selection and click on it until the following window appears
Step 4: Formatting Line Graph

- Select Marker Options, then select Built-in and choose the circle (marker size = aprox. 7-9)
- Repeat the steps for the
Step 4: Formatting Line Graph

- Then select Marker Line Color and select Gradient Line. Make sure to select the color WHITE.
- Repeat the steps for the other data series.
Step 4: Formatting Line Graph

- We now need to eliminate the gridlines from our graph. First, click anywhere on the graph and select Layout. Second, select Gridlines, then select Primary Horizontal Gridlines and select None.
Step 4: Formatting Line Graph

- We can now add the Axis Titles to the graph. We will begin with the Y-Axis.
- First, select Layout.
- Second, select Axis Titles and select Primary Vertical Axis Title, and then choose Rotated Title.
Step 4: Formatting Line Graph

- Click inside the box and title the Y-Axis
Step 4: Formatting Line Graph

- We are now ready to label the X-Axis.
- First, select Layout.
- Second, select Axis Titles and select Primary Horizontal Axis Title, and then choose Title Below Axis.
Step 4: Formatting Line Graph

- Click inside the box and title the X-Axis
Step 5: Adjust the X-axis

- We can now change the format of the X-Axis
- Click on Layout
- Primary Horizontal X-Axis
- And More Primary Horizontal X Options
Step 5: Adjusting the X-Axis

Make sure of the following:

- Minimum = Fixed
- Maximum = Fixed
- Major Unit = 5 (reduces clutter on X-axis)
- Minor Unit = 1
- Major Tick Mark = None
- Minor Tick Mark = Outside
- Click Close
Step 6: Adjusting the Y-Axis

- Now we can change the format of the Y-Axis
- Click on Layout
- Primary Vertical Y-Axis
- And More Primary Vertical Y Options
Step 6: Adjusting the Y-Axis

- Click on Fixed and change minimum to -5 (if you have a 0 data point you want to make sure that the 0 does not fall on the X-Axis)
- Click Fixed and change Maximum to 2 times the highest number in the data set. Except when Y-axis is a percentage. When Y represents Maximum = 100
- Click on Fixed and change Major and Minor Unit to a whole number
- Change Horizontal Axis Crosses to -1
Step 6: Adjusting the Y-Axis

You want to hide the -5 by completing the following steps:

- Click on Insert
- Click on Text Box
- Draw a small box around the -5
Step 6: Adjusting the Y-Axis

- Right click on the border of the box and then click on Format Shape (at the bottom of the pop up box)
- Click on fill color and select white
- Click on line color and select no fill
- Click on Close
Step 7: Drawing Phase Change Lines

- Click on Insert and then Shapes and choose the straight line
- First, hold down the shift key to ensure that the line remains straight. Next, hold the left side of the mouse and move the mouse upwards
Step 7: Drawing Phase Change Lines

1. Leave the line separating the baseline from the intervention solid

2. Click on an intervention line to change the format
Step 7: Drawing Phase Change Lines

- Right click on the first intervention line
- Click on format shape (at the bottom of the first pop up box)
- Click on line style (2nd pop up box)
- Click on the dashed line
- Repeat for all remaining lines
- Note: If you need to change these lines to black, click on Line Color and change to black
- Short cut: If you want to change all the lines at once, left click on your fist line and then hold down shift as you highlight the remaining lines
Step 8: Label the phases

- Click on insert
- Click on draw text box
- Enter the name of the phase
- Right click on the border of the text box and go to Format Text box
- Click on Fill (no color) and Line (no color)
- Repeat for other phases
Step 9: Remove graph border

- Right click on the left side of 50
- Click on Format Chart Area (bottom of first pop up box)
- Click on Border Color and click No Line
Step 10: Drawing Lines to Show Criteria Was Met

- Click on Insert and then Shapes and choose the straight line
- First, hold down the shift key to ensure that the line remains straight. Next, hold the left side of the mouse and move the mouse to the side
- The first line should correspond to the 3 min point on the Y-Axis. The second line at 4 min. Then 5 min and so forth.
- Hint: You can also left click on the line and move it with the arrow keys