**PSYC0037 Workshops**

**Design, sample size, and statistical power**

**Workshop aims:**

1. To build a simple demographics questionnaire in Gorilla using Questionnaire Builder 2.
2. To build a simple vocabulary task in Gorilla using Task Builder 2.
3. To combine the questionnaire and task on Gorilla using Experiment Builder.

Before the workshop, you should have watched the pre-recorded materials for the *(Re)introduction to Gorilla*. These slides will walk you through everything of importance for today’s workshop.

**1. Getting started**

Information on how to set up an account is available in the pre-recorded materials.

Once you are signed in, you will need to navigate to *Projects > Create a new project*.

Call the project **Gorilla Training**.

**2. Building a simple demographics questionniare**

2.1. We will first create a questionnaire which asks participants for their age and gender. To do this, we start by clicking on *Create* in the top right corner and then click on *Questionnaire Builder 2*.

You can create a new questionnaire and name it *Demographics*.

Now you are ready to start building the questionnaire.

2.2. First click *Edit* and click on *Page 1*. Under **Content**click *Text* to add a title and description.

A screenshot of a computer

Description automatically generated

Because this is markdown-formatted, you can use hashtags (#) to alter the size of the text by placing a number of them before a sentence.

In the text box to the right of the screen, add the text:

# Demographics Questionnaire

</br>

## To begin with, you will be asked a series of demographic questions.

</br>

## Please respond in the spaces provided.

</br> is used to put spaces between lines of text. You can try taking these out to see how it looks.

2.3. Now we will add a *Number Entry* object to record a participants’ age.

Click *Add Object* then select *Number Entry* then click *Create*.

In the **Question** field write *What is your age (years)* and under **Identification** change the **Name** to *Age* so that your data file codes the response as something meaningful. As we want all participants to answer this question, we leave **Optional** as blank.

2.4. Now add a *Multiple Choice* object to the questionnaire to collect data on gender. In the **Name** field we name this something meaningful, like *Gender*. In the **Question** box write *What gender do you identify with.* We then use **Options** to add in all the gender options we’d like. Let’s just insert *Male* and *Female* and for now. We can then tick **Allow ‘Other’** so that an *other* options appears where participants must specify their gender.

You should now have a questionnaire in your Page 1 preview that looks like this.

A screenshot of a computer

Description automatically generated

2.5. Once you are done, save the questionnaire by clicking *Commit Version 1*. You’ll be asked give a description, which you can type in *basic questionnaire*.

That’s it! You have programmed your questionnaire! You can preview it to have a look at it.

**3. Building a task**

3.1 We will now build a simple vocabulary test. This is based on the Shipley (1940) task, where participants see a word on screen and have to pick which of 4 options is a synonym of this word. To start creating a task click on *create* on the projects screen then *Tasks/Questionnaires* then *Task Builder 2.*

Create a new task and call it Vocabulary\_Test

You are now ready to begin creating your experimental task. This task is going to consist of 3 sections; the instructions, the questions and the end screen.

3.2 We will start by creating the instructions.

3.2.1 Click on the ‘**Edit**’ option at the top right of the screen. Then click **Add First** **Display**. Name this Instructions.

3.2.2 Click on **Screen 1**. Select *Instructions Screen* as your template. You can edit this in the same way as you did the questionnaire. Click in the middle of the screen to bring up the editing options for the Markdown object. You can format this in the same way as the questionnaire instructions. Type the following instructions into the text box:

# Vocabulary task

</br>

## In this task, a word will be shown at the top of the page printed in capital letters. Below it are four other words. Click on the one word which means the same thing as the word above. If you don’t know, guess.

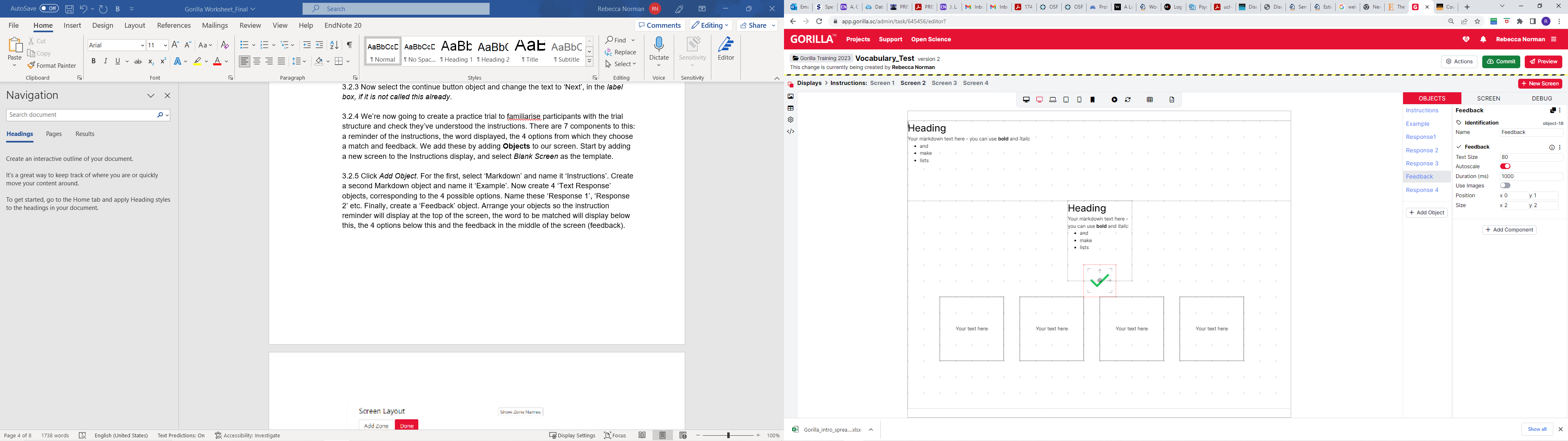
</br>

## An example is shown on the next page.

3.2.3 Now select the continue button object and change the text to ‘Next’, in the *label box, if it is not called this already*.

3.2.4 We’re now going to create a practice trial to familiarise participants with the trial structure and check they’ve understood the instructions. There are 7 components to this: a reminder of the instructions, the word displayed, the 4 options from which they choose a match and feedback. We add these by adding **Objects** to our screen. Start by adding a new screen to the Instructions display, and select *Blank Screen* as the template.

3.2.5 Click *Add Object*. For the first, select ‘Markdown’ and name it ‘Instructions’. Create a second Markdown object and name it ‘Example’. Now create 4 ‘Text Response’ objects, corresponding to the 4 possible options. Name these ‘Response 1’, ‘Response 2’ etc. Finally, create a ‘Feedback’ object. Arrange your objects so the instruction reminder will display at the top of the screen, the word to be matched will display below this, the 4 options below this and the feedback in the middle of the screen (feedback).



3.2.6 Let’s add some content. Click on ‘Instructions’ in your list of objects, then in the ‘Raw Text’ box type the following and set the ‘Text Size’ to 42

Select the one word from the four options which means the same thing as the word above.

</br>

</br>

Example:

For ‘Example’ below. Type ‘LARGE’ as the word to be matched and set the font size to 32. Centre and set the text in the middle of the object. For the 4 objects corresponding to the word options, type the 4 words ‘red’, ‘big’, ‘silent’ and ‘wet’ into the text box and set the font size to 32.

3.2.7 We want to provide our participants with some feedback on the practice trial. Click on the **SCREEN** tab on the right hand side of the screen. Click ‘Add Component’ and select scorer. The feedback object relies on this to tell it what the correct response is. Type ‘big’ into the Correct Answer box.

3.2.8 Go back to the OBJECTS tab and go to the first of your responses. In the ‘Click Response’ component, type ‘red’ into the response box. Repeat with all other response objects. This is what the scorer uses to tell whether a response is correct or not.

3.2.9 Preview the task to check everything is working properly – Gorilla should show an X when the incorrect answer is selected and a ✓ when you click the correct one (big).

3.2.9 Add a new screen to tell participants they are moving on to the main experiment. Add a new screen to the Instructions display and create a Markdown object and a continue button. Type the following instructions into the box:

# You will now begin the task. There will be no feedback given on your responses.

</br>

</br>

</br>

## Click "Next" when you are ready to begin the task.

Change the response button text to ‘Next’.

Commit changes.

3.3 Now we’re going to add our experimental trials.

3.3.1 A reminder - trials will show one word at the top of the screen and 4 options below it one of which will match its meaning. Create a new display, and call it Questions.

3.3.2 Add a new screen to this display, select ‘blank’ as the template. Add one Markdown Object and four text response buttons. Name them something useful, I’ve gone for Target word and then just Response 1, 2, 3, and 4. Arrange these such that one is displayed at the top of the screen and 4 are displayed below it.

A screenshot of a computer

Description automatically generated

3.3.3 We’re going to link our trials to a spreadsheet. You can download this from the same page where you downloaded this worksheet.

Then go to the **Spreadsheet** tab on the left hand side of the screen and upload spreadsheet. You will notice that Gorilla has imported the spreadsheet headings. These correspond to:

display: the display to be presented

word: The target word

options1,2,3,4: The word choices

correct\_response: The correct answer

question number

3.3.4 Go back to the displays tab. Click on the Target Word object, and click the ‘bind’ symbol next to the Raw Text box. In the Spreadsheet tab, under ‘Use the value in this spreadsheet column’ select **word**. Click ‘Bind’.

3.3.5 Click on the first of the bottom 4 objects and click the bind symbol next to the ‘Text’ box. Select option1 as the spreadsheet value. We want the ‘Click Response’ to correspond to the same word as shown on the response object, so under ‘Click Response’ click the bind symbol next to the ‘Response’ box. Select ‘option1’ as the spreadsheet value. Repeat for the other response options.

3.3.5 We want to record whether participants answered correctly or not, so we need to add a scorer. Go to the SCREEN tab, Add Component, then select scorer. We will use the spreadsheet to tell Gorilla what the correct answer is on each trial, so click the bind symbol next to the Correct Answer box, and on the ‘spreadsheet tab’ set the column to ‘correct\_response’.

3.4 The final thing we need to do is create an end screen.

3.4.1 Create a new display. Name it ‘End\_Task’. Create a new screen in this display and add a Markdown text object. Add some text telling participants that they have completed the task and thank them for their time. Add a continue button.

3.5 Check the displays are linked to the spreadsheet, where you have bound anything to a spreadsheet column there should be a green box with an S in it before the name of the spreadsheet column.

3.6 Preview the task to check that it all works.

3.7 Click ‘Commit’ to save the task, type ‘basic experiment’ into the description.

**4. Building an experiment**

4.1 Now we have our task and questionnaire we can build an experiment. Click *Create* -> *Experiments* to open the experiment builder.

4.2 Experiments are composed of **‘Nodes’**. You will see that Gorilla automatically includes ‘Start’ and ‘Finish’ nodes, all you need to do is add in your questionnaire and task.

4.2.1 To add the questionnaire, click *Edit -> Add New Node -> Questionnaire*. Select Demographics.

4.2.2 To add the task, click *Edit -> Add New Node -> Task*. Select Vocabulary\_Test.

4.3 You will now see two new nodes corresponding to the questionnaire and the task displayed on the left side of the screen. Drag these over to the **Experiment Tree** (the start and finish nodes connected by the arrow) and insert them by dragging the arrow from the white circle at the bottom of the Start node to the top of the Questionnaire node. Now click on the white circle at the bottom of this and connect an arrow to the Task node. Finally, join the task node to the end node.

4.4 You have now finished creating your experiment! Click ‘Preview Experiment’ to check it all runs smoothly.