*Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit...*

*There is no one who loves pain itself, who seeks after it and wants to have it, simply because it is pain...*

# 1 Results

## 1.1 Chatbot Usabilty Questionanire (CUQ)

### 1.1.1 CUQ Calcuation tool

The CUQ was developed by researchers at Ulster University {<ahref="https://www.ulster.ac.uk/research/topic/computer-science/artificial-intelligence/projects/cuq", and as the calculation can be complex a dedicated calculation tool has been created.

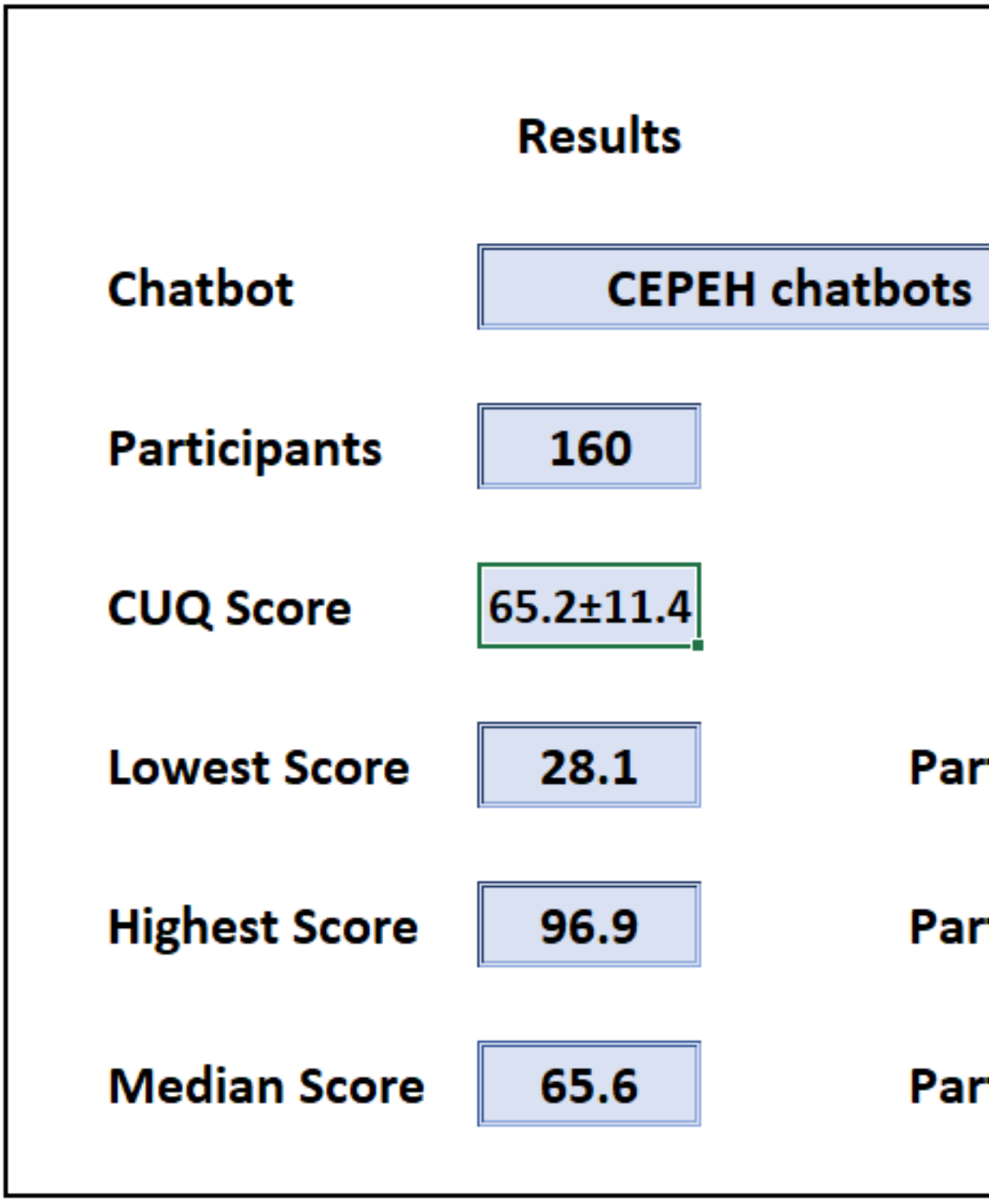
Please download the CEPEH CUQ calculation tool with the data entered so you can see the CEPEH CUQ scoring.

click here

The results are as followed:

```
knitr::include_graphics("cuq.png")
```

# Chatbot Usability C



| Results | |
|---|---|
| Chatbot | CEPEH chatbots |
| Participants | 160 |
| CUQ Score | 65.2±11.4 |
| Lowest Score | 28.1 |
| Highest Score | 96.9 |
| Median Score | 65.6 |

This is the results page. Mean CUQ score,
median scores are above. Mean scores pe

## 1.2 Pre Usage Results

```
# A tibble: 41 x 2

   profession                     hours

   <chr>                          <chr>

 1 Student on a Healthcare course 1-4 hours

 2 Student on a Healthcare course Never

 3 Student on a Healthcare course Never

 4 Student on a Healthcare course Never

 5 College student                1-4 hours

 6 Student on a Healthcare course 1-4 hours

 7 Student on a Healthcare course Never

 8 Student on a Healthcare course Never

 9 Student on a Healthcare course Never

10 Lecturer                       Never

# ... with 31 more rows
```

| profession | hours |
|---|---|
| Student on a Healthcare course | 1-4 hours |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | Never |
| College student | 1-4 hours |
| Student on a Healthcare course | 1-4 hours |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | Never |
| Lecturer | Never |
| Learning Technologist | 20+ hours |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | 1-4 hours |
| Student on a Healthcare course | 1-4 hours |
| Student on a Healthcare course | 1-4 hours |
| Student on a Healthcare course | 1-4 hours |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | 1-4 hours |
| Lecturer | 1-4 hours |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | 1-4 hours |
| College student | 1-4 hours |
| Postgraduate student | 1-4 hours |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | Never |
| Mature Student | Never |
| Postgraduate student | 1-4 hours |
| Doctor | 5-9 hours |
| Doctor | 10-19 hours |
| Lecturer | 1-4 hours |
| College student | Never |
| Medical doctor | 1-4 hours |
| Learning Technologist | Never |
| Student on a Healthcare course | 5-9 hours |
| Student on a Healthcare course | Never |
| Student on a Healthcare course | 1-4 hours |

## 1.3 System Usability Scale (SUS) Scores

*Note= The amount of 'agreement' is defined as the addition of 'Agree' and 'Strongly agree' responses.*

The SUS score for all data was XXX. This is within, and above the median of, 68 – which is in the range of 'average' usability. This is good as the resources were early demonstrations and had reduced beta alpha testing due to time constraints-future updates can improve this metric.

After reversing the scores of the negatively worded questions (odd numbered questions), participants strongly agreed the system was not complex (XX% agreements), and they did not need assistance before use (XX% agreements). All remaining questions has the most frequently observed response as 'agree'- the lowest amount of agreement (agree and strongly agree) was XX% for question X, which was explored further in the individual Partners' analyses.

if you don't like boring tables, here is the same data in a graph!

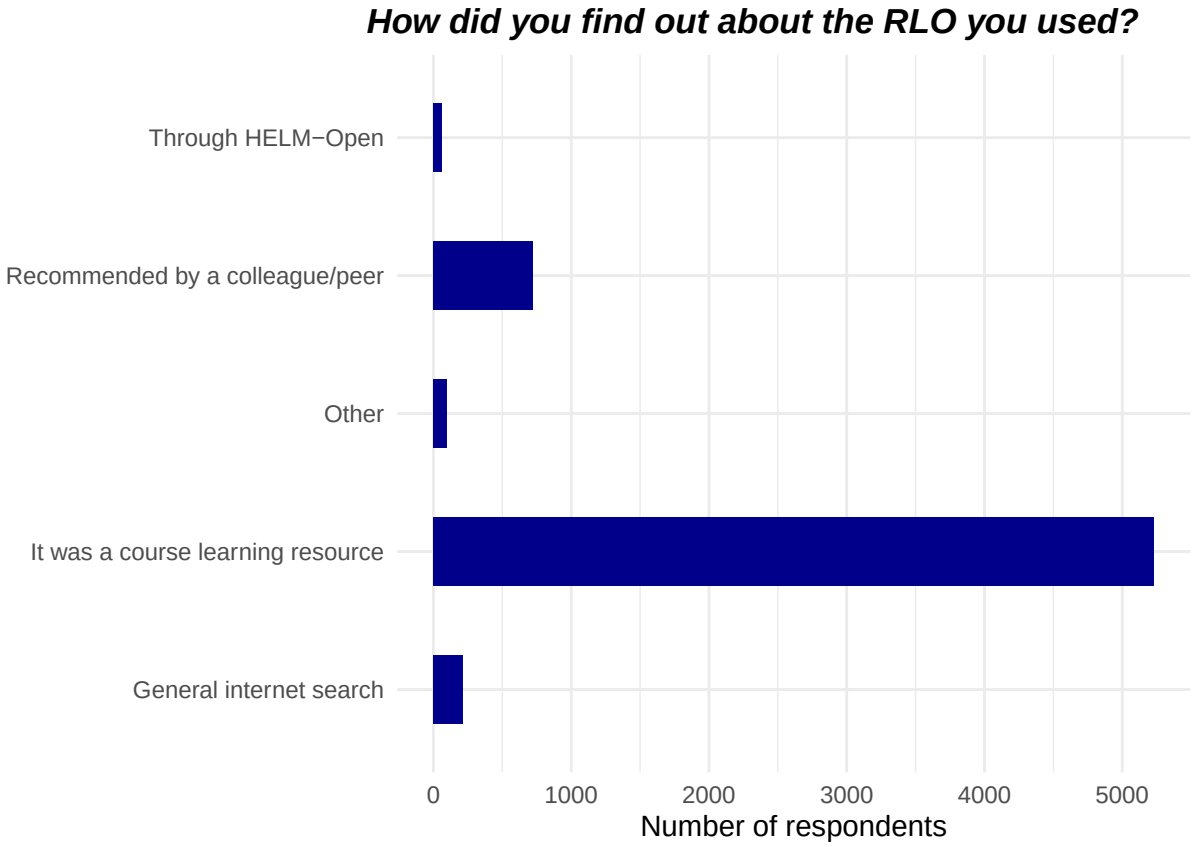
## 1.4 Technology Acceptance Model

The TAM had 3 sections (Ease of Use, Perceived Usefulness, and Intention of Use). Ease of Use results showed significant increases in Users' usage with each Chatbot. Perceived Usefulness: There were not significant findings for the Perceived usefulness. The justification for this may be due to being early versions of applications with limited functionality and functions which can be difficult for user to experience the intended further range of features and learning exercises. Intention of Use: For users' intentions to use within their course, the result of the Mann-Whitney U test was not significant, U = , z = , p = . in their intentions before use (m=xx, mode=xx) compared to after (m=xx, mode=x), however there was improvement therefore the chatbots may have more benefit than expected by students.

### 1.4.1 Course Learning, Recommendations, and more

The data showed that learners *strongly recommend* the RLO(s) they used to others, but how does this translate?

For the 10% of data we have, the figure below '*How did you find out about the RLO you used'* shows 700 respondents were recommended from a friend, peer, tutor, or other.




This figure also shows how more than 6000 respondents first used the RLOs as instructed by their tutors on their course.

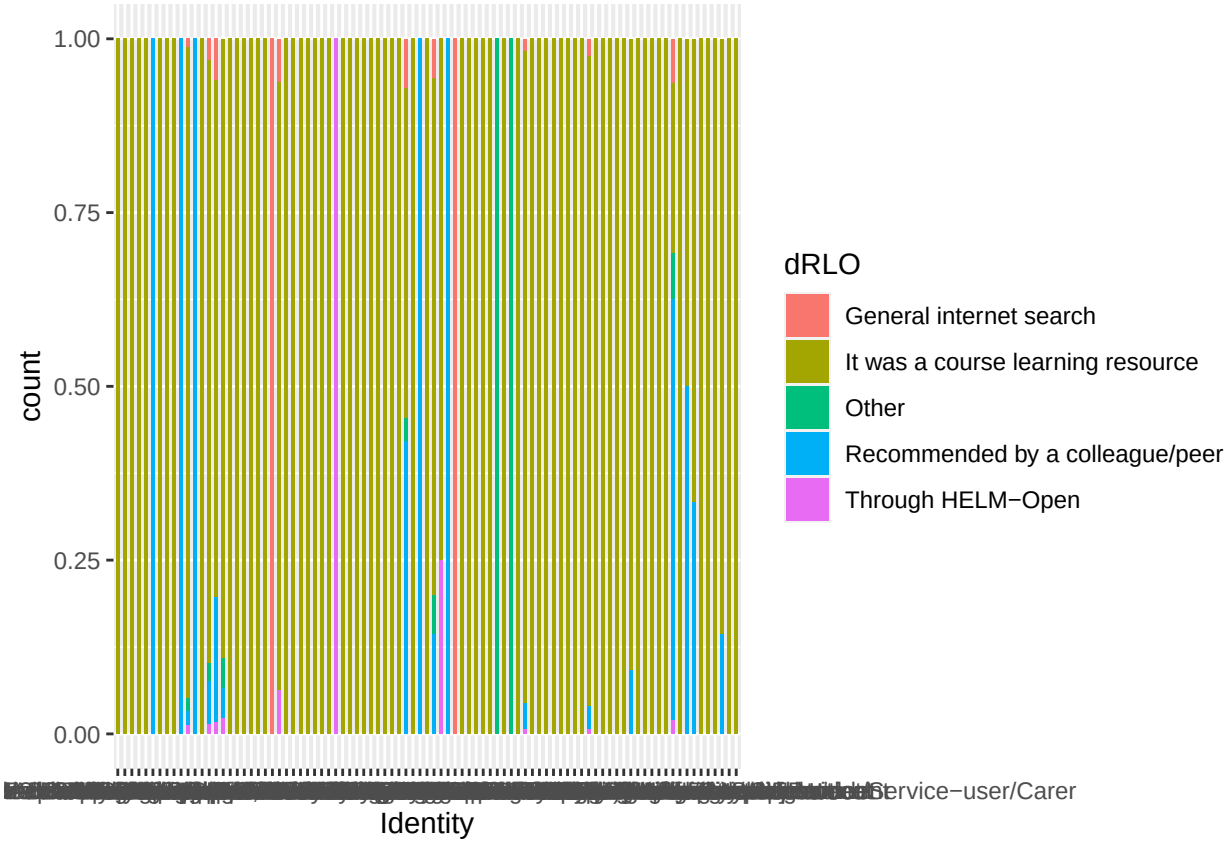
and if you're browsing the internet for information on a healthcare topic and come across https://www.nottingham.ac.uk/helmopen/ :- You're 1 of about 350 people finding about our resources from internet search. Hopefully that grows, but it seems social networking is the key to sharing these tools.

A random sample of other sources are: Twitter, Aim higher days, Barnardos ignite learning, and, well, '*a random Google photo*;'- our online presence seems

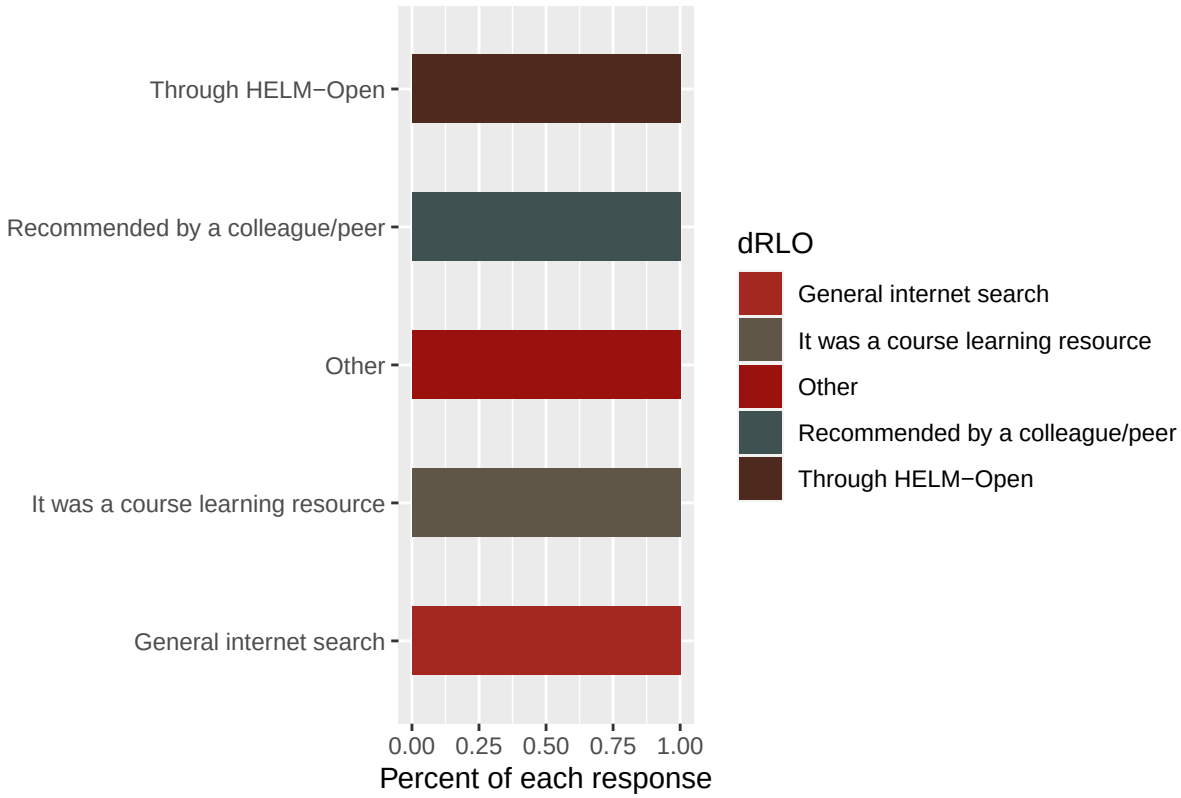
to be in many places!

UP TO HERE1

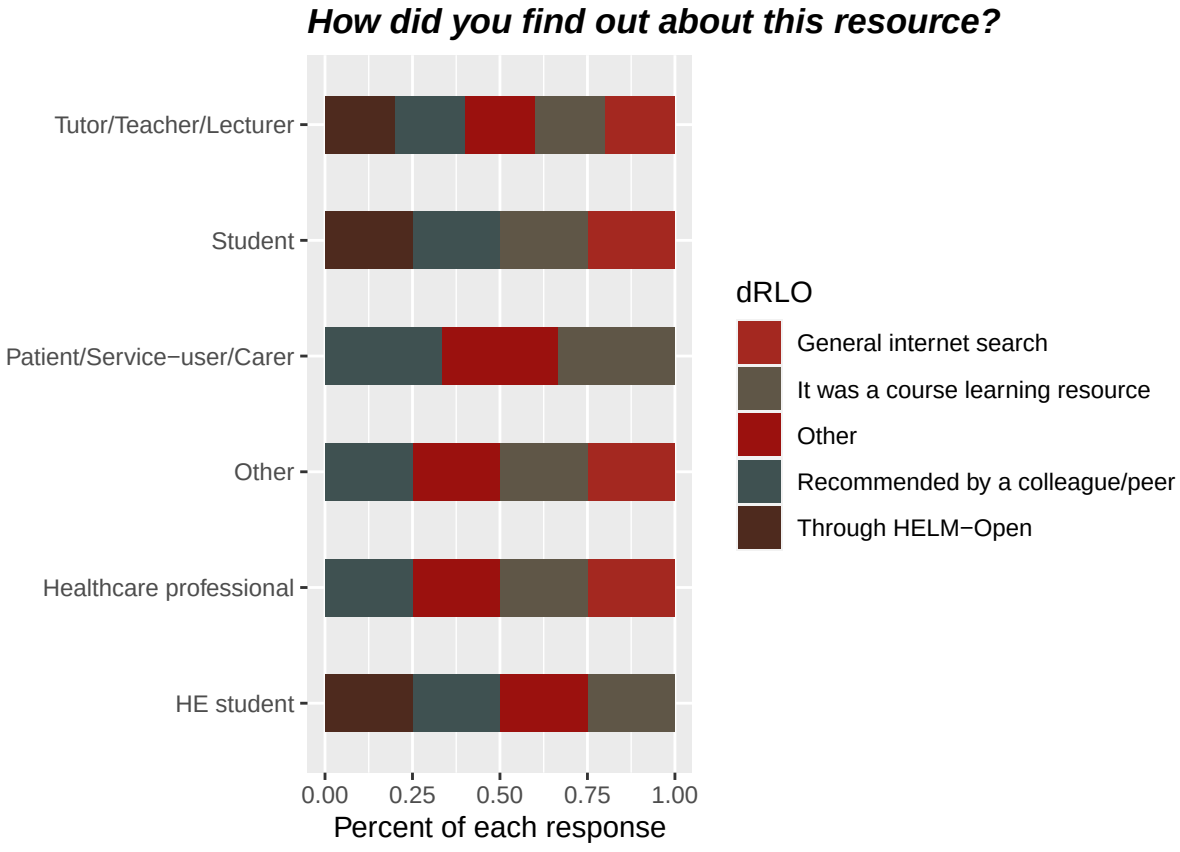
```
# A tibble: 24 x 3
# Groups:   Identity, dRLO [24]
   Identity                dRLO                                n
   <chr>                   <chr>                           <int>
 1 HE student              It was a course learning resource    80
 2 HE student              Other                                 2
 3 HE student              Recommended by a colleague/peer       4
 4 HE student              Through HELM-Open                     1
 5 Healthcare professional General internet search               7
 6 Healthcare professional It was a course learning resource   131
 7 Healthcare professional Other                                 3
 8 Healthcare professional Recommended by a colleague/peer      10
 9 Other                   General internet search               8
10 Other                   It was a course learning resource    50
# ... with 14 more rows
```




***How helpful has this learning object been?***



```
# A tibble: 24 x 3
# Groups:   Identity, dRLO [24]
   Identity                dRLO                                n
   <chr>                   <chr>                           <int>
 1 HE student              It was a course learning resource    80
 2 HE student              Other                                2
 3 HE student              Recommended by a colleague/peer      4
 4 HE student              Through HELM-Open                    1
 5 Healthcare professional General internet search              7
 6 Healthcare professional It was a course learning resource  131
 7 Healthcare professional Other                                3
 8 Healthcare professional Recommended by a colleague/peer     10
 9 Other                   General internet search              8
10 Other                   It was a course learning resource    50
# ... with 14 more rows
```



### 1.4.2 Italics and bold

- *Italics* are done like *this* or _this_
- **Bold** is done like **this** or ___this___
- ***Bold and italics*** is done like ***this***, _____this_____, or (the most transparent solution, in my opinion) **_this_**

### 1.4.3 Hyperlinks

- This is a hyperlink created by writing the text you want turned into a clickable link in `[square brackets followed by a](https://hyperlink-in-parentheses)`

### 1.4.4 Footnotes

- Are created[1] by writing either ^[my footnote text] for supplying the footnote content inline, or something like `[^a-random-footnote-label]` and supplying the text elsewhere in the format shown below [2]:

```
[^a-random-footnote-label]: This is a random test.
```

### 1.4.5 Comments

To write comments within your text that won't actually be included in the output, use the same syntax as for writing comments in HTML. That is, .

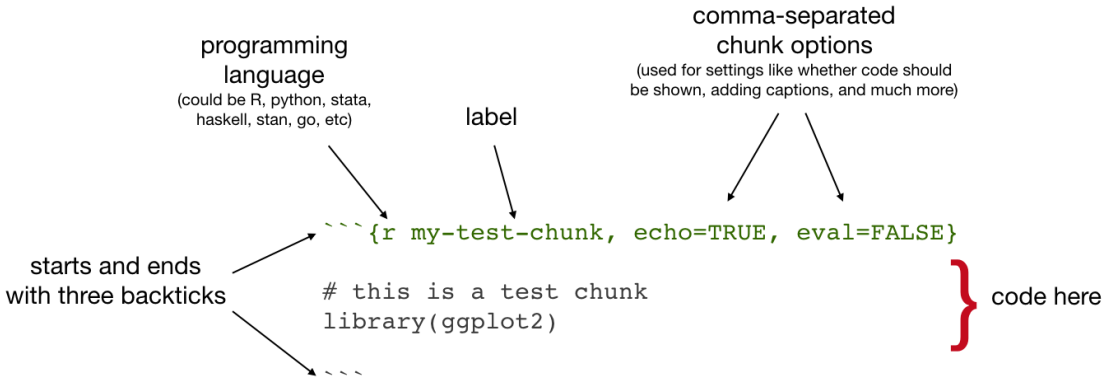



**Figure 1.1:** Code chunk syntax

[1] my footnote text
[2] This is a random test.


**Figure 1.2:** Oxford logo

Code chunks are also used for including images, with `include_graphics` from the `knitr` package, as in Figure 1.2

Useful chunk options for figures include:

- `out.width` (use with a percentage) for setting the image size
- if you've got an image that gets waaay to big in your output, it will be constrained to the page width by setting `out.width = "100%"`

#### Figure rotation

You can use the chunk option `out.extra` to rotate images.

The syntax is different for LaTeX and HTML, so for ease we might start by assigning the right string to a variable that depends on the format you're outputting to:

Then you can reference that variable as the value of `out.extra` to rotate images, as in Figure 1.3.

### 1.4.6 Including plots

Similarly, code chunks are used for including dynamically generated plots. You use ordinary code in R or other languages - Figure 1.4 shows a plot of the `cars` dataset of stopping distances for cars at various speeds (this dataset is built in to **R**).


**Figure 1.3:** Oxford logo, rotated

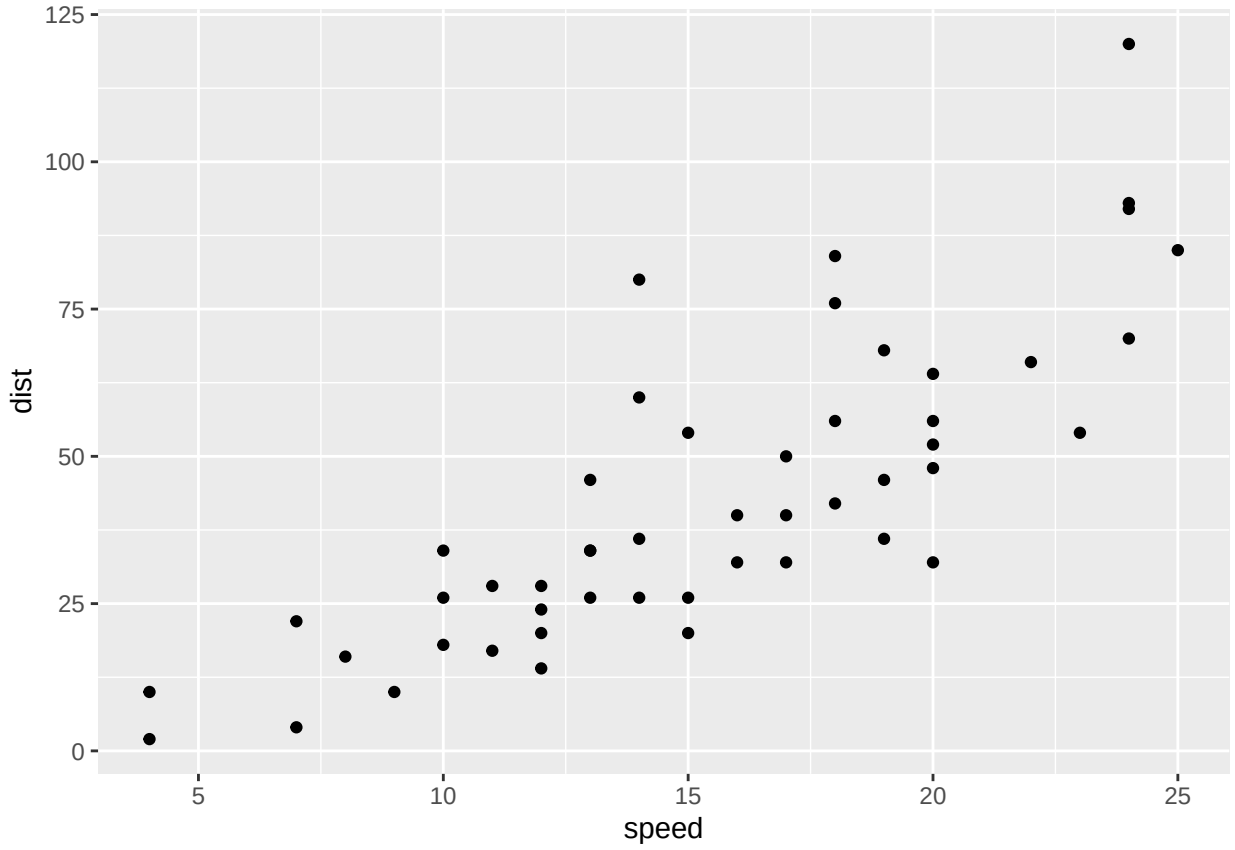



**Figure 1.4:** A ggplot of car stuff

**Table 1.1:** A knitr kable table

| speed | dist |
|---|---|
| 4 | 2 |
| 4 | 10 |
| 7 | 4 |
| 7 | 22 |
| 8 | 16 |
| 9 | 10 |

Under the hood, plots are included in your document in the same way as images - when you build the book or knit a chapter, the plot is automatically generated from your code, saved as an image, then included into the output document.

### 1.4.7 Including tables

Tables are usually included with the `kable` function from the `knitr` package.

Table 1.1 shows the first rows of that cars data - read in your own data, then use this approach to automatically generate tables.

- Gotcha: when using `kable`, captions are set inside the `kable` function
- The `kable` package is often used with the `kableExtra` package

### 1.4.8 Control positioning

One thing that may be annoying is the way *R Markdown* handles "floats" like tables and figures. In your PDF output, LaTeX will try to find the best place to put your object based on the text around it and until you're really, truly done writing you should just leave it where it lies.

In general, you should allow LaTeX to do this, but if you really *really* need a figure to be positioned where you put in the document, then you can make LaTeX attempt to do this with the chunk option `fig.pos="H"`, as in Figure 1.5:


**Figure 1.5:** An Oxford logo that LaTeX will try to place at this position in the text

As anyone who has tried to manually play around with the placement of figures in a Word document knows, this can have lots of side effects with extra spacing on other pages, etc. Therefore, it is not generally a good idea to do this - only do it when you really need to ensure that an image follows directly under text where you refer to it (in this document, I needed to do this for Figure **??** in section **??**). For more details, read the relevant section of the R Markdown Cookbook.

## 1.5 Executable inline code

'Inline code' simply means inclusion of code inside text. The syntax for doing this is `` `r R_CODE` `` For example, `` `r 4 + 4` `` will output 8 in your text.

You will usually use this in parts of your thesis where you report results - read in data or results in a code chunk, store things you want to report in a variable, then insert the value of that variable in your text. For example, we might assign the number of rows in the `cars` dataset to a variable:

We might then write:

"In the `cars` dataset, we have `` `r num_car_observations` `` observations."

Which would output:

"In the `cars` dataset, we have 50 observations."

## 1.6 Executable code in other languages than R

If you want to use other languages than R, such as Python, Julia C++, or SQL, see the relevant section of the *R Markdown Cookbook*