Data Wrangling and Analysis of Experiment Results

Masoud Jasbi 7/8/2019

Data Wrangling

```
qualtrics_data <- read.csv("data/Pilot-Quantifiers-data-trimmed.csv")

N_dropout <-
    qualtrics_data %>%
    filter(Finished=="FALSE") %>%
    nrow()

N_participants <-
    qualtrics_data %>%
    filter(Finished=="TRUE") %>%
    nrow()
```

Total of 69 took this survey. 13 did not finish the survey and dropped out. The results for 56 are reported.

```
qualtrics_data %>%
filter(Finished=="TRUE")
```

##		Finished	Every_day	each_day	all_days	most_days	many_days	some_days
##	1	TRUE	100	100	100	90	64	15
##	2	TRUE						
##	3	TRUE						
##	4	TRUE	100	100	100	80	65	40
##	5	TRUE						
##	6	TRUE	100	100	100	77	64	31
##	7	TRUE	72	100	100	81	80	40
##	8	TRUE						
##	9	TRUE						
##	10	TRUE	79	76	100	66	62	53
##	11	TRUE	100	100	100	75	65	50
##	12	TRUE						
##	13	TRUE	100	100	100	71	68	31
##	14	TRUE	100	100	100	85	75	32
##	15	TRUE						
##	16	TRUE						
##	17	TRUE						
##	18	TRUE						
##	19	TRUE	100	100	100	75	50	35
##	20	TRUE	100	100	100	75	60	33
##	21	TRUE						
##	22	TRUE	94	98	100	84	36	45
##	23	TRUE	99	100	100	80	88	40
##	24	TRUE						
##	25	TRUE						
##	26	TRUE						
##	27	TRUE	100	100	100	80	51	67

##	28	TRUE	95	95	100	75	65		30
##	29	TRUE	100	100	100	92	70		55
##	30	TRUE							
##	31	TRUE							
##	32	TRUE	100		100	70	100		20
##	33	TRUE							
##	34	TRUE	100	100	100	85	70		40
	35	TRUE	100	100	100	80	60		30
	36	TRUE							
	37	TRUE							
	38	TRUE	100	100	100	70	82		30
	39	TRUE	100	100	100	10	02		00
	40	TRUE	100	100	100	81	88		13
	41	TRUE		100		61	78		68
			100	10	100	01	10		00
	42	TRUE	100	100	100	Ε.4	- 1		22
	43	TRUE	100	100	100	54	51		33
	44	TRUE							
	45	TRUE	400	400	400	7.5	4.0		00
	46	TRUE	100	100	100	75 75	40		30
	47	TRUE	100	100	100	70	70		30
	48	TRUE							
	49	TRUE							
	50	TRUE	100	100	100	66	40		23
	51	TRUE	100	100	100	60	61		20
	52	TRUE							
	53	TRUE	100	100	100	80	35		20
	54	TRUE							
	55	TRUE							
	55 56	TRUE	95	100	100	70	35		40
## ##	56	TRUE several_days	a_few_days	few_days	no_days				
## ## ##	56 1	TRUE	a_few_days	few_days	no_days	Always	Usually	Mostly	Often
## ##	56 1	TRUE several_days	a_few_days	few_days	no_days	Always	Usually 66		
## ## ##	56 1 2	TRUE several_days	a_few_days 3	few_days	no_days	Always	Usually	Mostly	Often
## ## ## ##	 56 1 2 3 	TRUE several_days	a_few_days 3	few_days	no_days	Always	Usually 66	Mostly 73	Often 73
## ## ## ##	56 1 2 3 4	TRUE several_days 63	a_few_days 3	few_days	no_days	Always	Usually 66	Mostly 73	Often 73
## ## ## ## ##	56 1 2 3 4 5	TRUE several_days 63	a_few_days 3 . 3	few_days	no_days	Always 91 96	Usually 66 66	Mostly 73 64	Often 73 39
## ## ## ## ## ##	56 1 2 3 4 5 6	TRUE several_days 63	a_few_days 3 - 3	few_days	no_days	Always 91 96	Usually 66 66	Mostly 73 64	Often 73 39
## ## ## ## ## ##	56 1 2 3 4 5 6 7	TRUE several_days 63	a_few_days 3 . 3	few_days	no_days	Always 91 96	Usually 66 66	Mostly 73 64	Often 73 39
## ## ## ## ## ##	56 1 2 3 4 5 6 7 8	TRUE several_days 63	a_few_days 3 . 3	few_days	no_days	Always 91 96 95	Usually 66 66 80 85	73 64 90	Often 73 39 75
## ## ## ## ## ## ##	56 1 2 3 4 5 6 7 8 9	TRUE several_days 63	a_few_days 3 4 3 6 13	few_days	no_days	Always 91 96 95	Usually 66 66 80 85	73 64 90	Often 73 39 75
## ## ## ## ## ## ##	56 1 2 3 4 5 6 7 8 9 10	TRUE several_days 63 24 18	a_few_days 3 4 3 6 13 7 6	few_days	no_days	Always 91 96 95	Usually 66 66 80 85	73 64 90	Often 73 39 75
## ## ## ## ## ## ##	56 1 2 3 4 5 6 7 8 9 10 11	TRUE several_days 63 24 18 57	3 a_few_days 3 3 4 3 6 6	few_days	no_days	Always 91 96 95	Usually 66 66 80 85	73 64 90	Often 73 39 75
## ## ## ## ## ## ## ##	56 1 2 3 4 5 6 7 8 9 10 11 12	TRUE several_days 63 24 18 57	3 a_few_days 3 3 3 13 6 17 6 15 15	few_days	no_days	Always 91 96 95 100 91	Usually 66 66 80 85 70	73 64 90 90 66	Often 73 39 75 75 58
## ## ## ## ## ## ## ## ## ## ## ## ##	56 1 2 3 4 5 6 7 8 9 10 11 12	TRUE several_days 63 24 18 57	3 a_few_days 3 3 3 13 6 17 6 15 15 9	few_days 5 6 17	no_days	Always 91 96 95 100 91	Usually 66 66 80 85 70	73 64 90 90 66	Often 73 39 75 75 58
## ## ## ## ## ## ## ## ## ## ## ## ##	56 1 2 3 4 5 6 7 8 9 10 11 12 13 14	TRUE several_days 63 24 18 57	3 a_few_days 3 3 3 13 6 17 6 15 15 9	few_days 5 6 17	no_days	Always 91 96 95 100 91	Usually 66 66 80 85 70	73 64 90 90 66	Often 73 39 75 75 58
######################################	56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	TRUE several_days 63 24 18 57	3 a_few_days 3 3 3 13 6 17 6 15 15 9	few_days 5 6 17	no_days	91 96 95 100 91	Usually 66 66 80 85 70	73 64 90 90 66	Often 73 39 75 75 58
# # # # # # # # # # # # # # # # # # #	56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	TRUE several_days 63 24 18 57	3 a_few_days 3 3 3 13 6 17 6 15 15 9	few_days 5 6 17	no_days	Always 91 96 95 100 91 90	Usually 66 66 80 85 70 80	73 64 90 90 66 70	Often 73 39 75 75 58 65
######################################	56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	TRUE several_days 63 24 18 57	3 a_few_days 3 3 3 13 6 17 6 15 15 9	few_days 5 6 17	no_days	Always 91 96 95 100 91 90	Usually 66 66 80 85 70 80 85 39	73 64 90 90 66 70	Often 73 39 75 75 58 65 54 44 22
######################################	56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	TRUE several_days 63 24 18 57 64 25	3 a_few_days 3 3 3 13 6 15 15 9 6	few_days 5 6 17 21 10 14	no_days	Always 91 96 95 100 91 90 93 81 85	Usually 66 66 80 85 70 80 85 39 70	73 64 90 90 66 70	Often 73 39 75 75 58 65 444
###########################	56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	TRUE several_days 63 24 18 57 64 25	3 a_few_days 3 3 3 3 4 3 5 6 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	few_days 3 5 6 17 21 10 14 13	no_days	Always 91 96 95 100 91 90 93 81 85	Usually 66 66 80 85 70 80 85 39 70	73 64 90 90 66 70	73 39 75 75 58 65 54 44 22
###########################	56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	TRUE several_days 63 24 18 57 64 25	3 a_few_days 3 3 3 13 13 15 15 15 15 15 15 15 15 15 15 15 15 15	few_days 3 5 6 17 21 10 14 13	no_days	91 96 95 100 91 90 93 81 85 98	Usually 66 66 80 85 70 80 85 39 70 70	73 64 90 66 70 67 71 61 68	Often 73 39 75 75 58 65 54 44 22 55
##########################	56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	TRUE several_days 63 24 18 57 64 25 7	3 a_few_days 3 3 13 6 15 15 10	few_days 5 6 17 21 14 13	no_days	Always 91 96 95 100 91 90 93 81 85	Usually 66 66 80 85 70 80 85 39 70	73 64 90 90 66 70	73 39 75 75 58 65 54 44 22
############################	56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	TRUE several_days 63 24 18 57 64 25 7	3 a_few_days 3 3 4 3 5 13 6 17 6 15 7 10	few_days 5 6 17 21 10 12 10 11 12 11 12	no_days	91 96 95 100 91 90 93 81 85 98	Usually 66 66 80 85 70 80 85 39 70 70	73 64 90 66 70 67 71 61 68	Often 73 39 75 75 58 65 54 44 22 55
############################	56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	TRUE several_days 63 24 18 57 64 25 7	3 a_few_days 3 3 4 3 5 13 6 17 6 15 7 10	few_days 5 6 17 21 10 12 10 11 12 11 12	no_days	91 96 95 100 91 90 93 81 85 98	Usually 66 66 80 85 70 80 85 39 70 70	73 64 90 66 70 67 71 61 68	Often 73 39 75 75 58 65 54 44 22 55

44.44	ΩE					00	61	70	60
	25 26					82 96	61 68	70 69	62 49
	27	30	25	30		90	00	09	49
	28	12	4	8					
	29	14	7	3					
	30	11	•	J		90	75	80	60
	31					72	10	65	40
	32	18			100		10	00	10
	33					100	80	80	50
	34	20	5	5	0				
	35	10	20	20	0				
##	36					97	64	74	48
##	37					92	91	100	72
##	38	4	5	6					
##	39					96	67	65	42
##	40	37	13	20					
	41	6	11	25	0				
	42					6	18	100	18
	43	42	8	37					
	44					100	68	80	67
	45					100	75	90	85
	46	15	10	10					
	47	40	20	20		00	50	F.0	00
	48					82	53	59	38
	49 50	F	2	12		100	85	100	50
	51	5 16	3 6	9					
	52	10	O	3		100	80	80	65
	02								
##	53	10	5	5		100	00	00	00
	53 54	10	5	5					
##	54	10	5	5		96	85	85	80
## ##		10	5 6	5 20					
## ##	54 55		6	20	Seldom	96 100	85 77	85 80	80 42
## ## ##	54 55 56	10	6	20	Seldom	96 100	85 77	85 80	80 42
## ## ## ##	54 55 56	10	6 Occa	20	Seldom	96 100	85 77	85 80	80 42 ver
## ## ## ##	54555612	10 Frequently Sometimes	6 Occa	20 asionally		96 100 Rarely	85 77	85 80 ntly Ne	80 42 ver
## ## ## ## ## ##	54 55 56 1 2 3 4	10 Frequently Sometimes 80 23 49 29	6 Occa	20 asionally 29 20	4 10	96 100 Rarely 20 8	85 77	85 80 ntly Ne 20 32	80 42 ver 2 1
## ## ## ## ## ##	54 55 56 1 2 3 4 5	10 Frequently Sometimes 80 23	6 Occa	20 asionally 29	4	96 100 Rarely 20	85 77	85 80 ntly Ne 20	80 42 ver
## ## ## ## ## ## ##	54 55 56 1 2 3 4 5	10 Frequently Sometimes 80 23 49 29	6 Occa	20 asionally 29 20	4 10	96 100 Rarely 20 8	85 77	85 80 ntly Ne 20 32	80 42 ver 2 1
## ## ## ## ## ## ##	54 55 56 1 2 3 4 5 6 7	10 Frequently Sometimes 80 23 49 29 90 40	6 Occa	20 asionally 29 20 20	4 10 10	96 100 Rarely 20 8	85 77 Infreque	85 80 ntly Ne 20 32 80	80 42 ver 2 1
## ## ## ## ## ## ##	54 55 56 1 2 3 4 5 6 7 8	10 Frequently Sometimes 80 23 49 29 90 40	6 Occa	20 asionally 29 20 20	4 10 10	96 100 Rarely 20 8 15	85 77 Infreque	85 80 ntly Ne 20 32 80	80 42 ver 2 1
## ## ## ## ## ## ## ##	54 55 56 1 2 3 4 5 6 7 8 9	10 Frequently Sometimes 80 23 49 29 90 40	6 Occa	20 asionally 29 20 20	4 10 10	96 100 Rarely 20 8	85 77 Infreque	85 80 ntly Ne 20 32 80	80 42 ver 2 1
## ## ## ## ## ## ## ## ## ## ## ## ##	54 55 56 1 2 3 4 5 6 7 8 9 10	10 Frequently Sometimes 80 23 49 29 90 40	6 Occa	20 asionally 29 20 20	4 10 10	96 100 Rarely 20 8 15	85 77 Infreque	85 80 ntly Ne 20 32 80	80 42 ver 2 1
## ## ## ## ## ## ## ## ## ## ## ## ##	54 55 56 1 2 3 4 5 6 7 8 9 10	10 Frequently Sometimes 80 23 49 29 90 40 75 50 70 50	6 Occa	20 asionally 29 20 20 30 33	4 10 10 15 8	96 100 Rarely 20 8 15	85 77 Infreque	85 80 ntly Ne 20 32 80	80 42 ver 2 1
######################################	54 55 56 1 2 3 4 5 6 7 8 9 10 11 12	10 Frequently Sometimes 80 23 49 29 90 40	6 Occa	20 asionally 29 20 20	4 10 10	96 100 Rarely 20 8 15	85 77 Infreque	85 80 ntly Ne 20 32 80	80 42 ver 2 1
# # # # # # # # # # # # # # # # # # #	54 55 56 1 2 3 4 5 6 7 8 9 10 11 12 13	10 Frequently Sometimes 80 23 49 29 90 40 75 50 70 50	6 Occa	20 asionally 29 20 20 30 33	4 10 10 15 8	96 100 Rarely 20 8 15	85 77 Infreque	85 80 ntly Ne 20 32 80	80 42 ver 2 1
######################################	54 55 56 1 2 3 4 5 6 7 8 9 10 11 12 13 14	10 Frequently Sometimes 80 23 49 29 90 40 75 50 70 50	6 Occa	20 asionally 29 20 20 30 33	4 10 10 15 8	96 100 Rarely 20 8 15 15	85 77 Infreque	85 80 ntly Ne 20 32 80 30 20	80 42 ver 2 1
#######################################	54 55 56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	10 Frequently Sometimes 80 23 49 29 90 40 75 50 70 50 70 30	6 Occa	20 asionally 29 20 20 30 33 30	4 10 10 15 8 25	96 100 Rarely 20 8 15 15 17	85 77 Infreque	85 80 ntly Ne 20 32 80 30 20	80 42 ver 2 1 0
######################################	54 55 56 1 2 3 4 5 6 7 8 9 10 11 12 13 14	10 Frequently Sometimes 80 23 49 29 90 40 75 50 70 50	6 Occa	20 asionally 29 20 20 30 33	4 10 10 15 8 25	96 100 Rarely 20 8 15 15	85 77 Infreque	85 80 ntly Ne 20 32 80 30 20	80 42 ver 2 1
###########################	54 55 56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	10 Frequently Sometimes 80 23 49 29 90 40 75 50 70 50 70 30 82 26 67 38	6 Occa	20 asionally 29 20 20 30 33 30 33	4 10 10 15 8 25	96 100 Rarely 20 8 15 17	85 77 Infreque	85 80 ntly Ne 20 32 80 30 20 25	80 42 ver 2 1 0
##########################	54 55 56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	10 Frequently Sometimes 80 23 49 29 90 40 75 50 70 50 70 30 82 26 67 38 51 24	6 Occa	20 asionally 29 20 20 30 33 30 23 23 20	4 10 10 15 8 25	96 100 Rarely 20 8 15 17 10	85 77 Infreque	85 80 ntly Ne 20 32 80 30 20 25	80 42 ver 2 1 0
##########################	54 55 56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 19 20 19 20 19 20 19 20 19 20 19 20 19 20 19 20 19 20 19 20 19 20 20 20 20 20 20 20 20 20 20 20 20 20	10 Frequently Sometimes 80 23 49 29 90 40 75 50 70 50 70 30 82 26 67 38 51 24	6 Occa	20 asionally 29 20 20 30 33 30 23 23 20	4 10 10 15 8 25	96 100 Rarely 20 8 15 17 10	85 77 Infreque	85 80 ntly Ne 20 32 80 30 20 25	80 42 ver 2 1 0
##########################	54 55 56 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	10 Frequently Sometimes 80 23 49 29 90 40 75 50 70 50 70 30 82 26 67 38 51 24	6 Occa	20 asionally 29 20 20 30 33 30 23 23 20	4 10 10 15 8 25	96 100 Rarely 20 8 15 17 10	85 77 Infreque	85 80 ntly Ne 20 32 80 30 20 25	80 42 ver 2 1 0

##								
##								
##		76	40	13	5	11	22	0
##		75	26	19	7	8	26	6
##		75	38	10	17	21	23	2
##								
##								
##								
##	30	75	25	25	10	20	20	0
##	31	20	38	30	2	60	30	5
##	32							
##	33	65	40	30	5	15	30	
	34							
##	35							
##	36	47	23	13	12	10	16	1
##	37	83	42	29	15	100	29	4
##	38							
##	39	50	30	11	10	4	19	0
##	40							
##	41							
##	42	100	45	21	28	0	100	28
##	43							
##	44	77	32	18	6	12	20	
##	45	80	25	30	10	8	15	
##	46							
##	47							
##	48	61	44	33	24	27	74	
##	49	100	41	5	20	10	72	
##	50							
##	51							
##	52	70	28	15	5	10	30	0
##	53							
##	54	70	50	45	15	30	25	2
##	55	80	34	20	8	18	24	
##	56							

Analysis

You can also embed plots, for example:



Note that the echo = FALSE parameter was added to the code chunk to prevent printing of the R code that generated the plot.