Feedback MTurk Study

Introduction

Load Data

```
# d <- fread('Lungs_November+14,+2020_17.33.csv')
d <- fread('../check-valid-responses/data/qualtrics_results_final.csv')
#head(d)
```

```
d_respondents_only <-
  d[(Status == "IP Address") & (Finished == 'True'),]

# Remove these survey responses because they were from people who did the survey again. Double check th
d_respondents_only <-
  d_respondents_only[!ResponseId %in% c(
    'R_1eRkKqfVAmkVzj2',
    'R_3FRO3xu5zyOsRSU',
    'R_3HBQsMSMCgXPpKf',
    'R_dbzictBknL9jG3T'
  ), ]

# These WorkerId put in all 1 response (all Normal or all Pneumonia)
d_respondents_only <-
  d_respondents_only[!Q80 %in% c(
    "A119EX2LODNN1B",
    "A12NQJV6TA5OWB",
    "A18WFPSLFV4FKY",
    "A1BUYK6LXYWMLL",
    "A1FHRZXSE7XNJ4",
    "A1GMYDH5MKN1O5",
    "A2GSZ3D2XXC533",
    "A2IGIOD74EPOEF",
    "A2JO16DRTOBXWO",
    "A2NGFU82LMJ8OX",
    "A32K1MOA36EAK5",
    "A371SNJNNUY9Z6",
    "A3BPENSX5EVJ2H",
    "A3EPIT2P3ISA3K",
    "A3NYIJYBHAJ74V",
    "AUFLTHQAXWLH1",
    "AVINXZZV3FNG7" ,
    "A1CD7O6OQAQQRT",
    "A1CF1W8CPODHBO",
    "A1PGY59BR6C5BX",
    "A1YSYI926BBOHW",
    "A1Z3GFH6MNSU46",
    "A211KGJ94WNFLN",
```

```
    "A26RPQDD0RQEHL",
    "A2BUHMLNE3LUU0",
    "A2J5BRQ88W745H",
    "A2XIHO2W7EEP32",
    "A3EZ0H07TSDAPW",
    "A3FLBC6LC5GJ3W",
    "A3QLKLIQW1B1FR",
    "A8F6JFG0WSELT",
    "A9K6IVBA0J1CX",
    "ADLZLGHK0AEE6",
    "AE7NJG0K0VZYJ" ,
    "AG5RF4UGQJ7A7" ,
    "AQ9Y6WD8O72ZC" ,
    "tuturtu"
  ), ]

# These people just gave alternating responses (Normal, Pneumonia, Normal,...,Pneumonia)

d_respondents_only <- d_respondents_only[!Q80 %in% c(
'A1W05TSPORJPXR'
,'A3SUWCLD1GEGM7'
,'A3A09JB9X1RBXW'
,'A7VQQEIBSM9IU'
,'A8DER1QY96C5X'
,'A1M8MNKK8H5ZGW'
,'A34D5D6PU193AR'
)]

#head(d_respondents_only)
```

```
#rename task phase questions
setnames(d_respondents_only,
         old = c('Q2', 'Q42'),
         new = c('Self_Reflect_Q1', 'Self_Reflect_Q2'))

setnames(d_respondents_only,
         old = c('Q69', 'Q89'),
         new = c('Control_Q1', 'Control_Q2'))

setnames(d_respondents_only,
         old = c('Q80', 'Q82', 'Q83', 'Q84', 'SC0', 'FL_6_DO'),
         new = c('Amazon_Turk_ID', 'Gender', 'Age_Range', 'Education_Level', 'Total_Score', 'Assignment

setnames(d_respondents_only,
         old = c('Q1', 'Q5', 'Q6', 'Q7', 'Q16', 'Q17', 'Q18', 'Q19', 'Q20', 'Q21',
                 'Q8', 'Q9', 'Q10', 'Q11', 'Q22', 'Q23', 'Q24', 'Q25', 'Q26', 'Q27',
                 'Q12', 'Q13', 'Q14', 'Q15', 'Q28', 'Q29', 'Q30', 'Q31', 'Q32', 'Q33'),
         new = c('Q1', 'Q2', 'Q3', 'Q4', 'Q5', 'Q6', 'Q7', 'Q8', 'Q9', 'Q10',
                 'Q11', 'Q12', 'Q13', 'Q14', 'Q15', 'Q16', 'Q17', 'Q18', 'Q19', 'Q20',
                 'Q21', 'Q22', 'Q23', 'Q24', 'Q25', 'Q26', 'Q27', 'Q28', 'Q29', 'Q30'))

d_respondents_only[ , c("Q1_Score", "Q2_Score", "Q3_Score", "Q4_Score", "Q5_Score",
                        "Q6_Score", "Q7_Score", "Q8_Score", "Q9_Score", "Q10_Score",
                        "Q11_Score", "Q12_Score", "Q13_Score", "Q14_Score", "Q15_Score",
```

```
                        "Q16_Score", "Q17_Score", "Q18_Score", "Q19_Score", "Q20_Score",
                        "Q21_Score", "Q22_Score", "Q23_Score", "Q24_Score", "Q25_Score", "Q26_Score",
                        "Q27_Score", "Q28_Score", "Q29_Score", "Q30_Score") :=
                      list(ifelse(Q1 == "Normal", 1, 0),
                           ifelse(Q2 == "Normal", 1, 0),
                           ifelse(Q3 == "Pneumonia", 1, 0),
                           ifelse(Q4 == "Pneumonia", 1, 0),
                           ifelse(Q5 == "Normal", 1, 0),
                           ifelse(Q6 == "Pneumonia", 1, 0),
                           ifelse(Q7 == "Pneumonia", 1, 0),
                           ifelse(Q8 == "Normal", 1, 0),
                           ifelse(Q9 == "Pneumonia", 1, 0),
                           ifelse(Q10 == "Normal", 1, 0),
                           ifelse(Q11 == "Pneumonia", 1, 0),
                           ifelse(Q12 == "Normal", 1, 0),
                           ifelse(Q13 == "Pneumonia", 1, 0),
                           ifelse(Q14 == "Pneumonia", 1, 0),
                           ifelse(Q15 == "Normal", 1, 0),
                           ifelse(Q16 == "Normal", 1, 0),
                           ifelse(Q17 == "Pneumonia", 1, 0),
                           ifelse(Q18 == "Normal", 1, 0),
                           ifelse(Q19 == "Pneumonia", 1, 0),
                           ifelse(Q20 == "Normal", 1, 0),
                           ifelse(Q21 == "Normal", 1, 0),
                           ifelse(Q22 == "Normal", 1, 0),
                           ifelse(Q23 == "Pneumonia", 1, 0),
                           ifelse(Q24 == "Normal", 1, 0),
                           ifelse(Q25 == "Pneumonia", 1, 0),
                           ifelse(Q26 == "Pneumonia", 1, 0),
                           ifelse(Q27 == "Pneumonia", 1, 0),
                           ifelse(Q28 == "Pneumonia", 1, 0),
                           ifelse(Q29 == "Normal", 1, 0),
                           ifelse(Q30 == "Normal", 1, 0))]

d_respondents_only[ , Assignment_Group := ifelse(Assignment == "FL_17", "Control",
                                          ifelse(Assignment == "FL_14", "Self-Reflect",
                                          ifelse(Assignment == "FL_15", "Medical Feedback",
                                          ifelse(Assignment == "FL_16", "Positive Images", "Negative Ima

d_respondents_only[ , c("TaskPhase1_Score", "TaskPhase2_Score", "TaskPhase3_Score") :=
                      list(sum(Q1_Score, Q2_Score, Q3_Score, Q4_Score, Q5_Score, Q6_Score, Q7_Score, Q8
                           sum(Q11_Score, Q12_Score, Q13_Score, Q14_Score, Q15_Score, Q16_Score, Q17_Sc
                           sum(Q21_Score, Q22_Score, Q23_Score, Q24_Score, Q25_Score, Q26_Score, Q27_Sc
                    by = Amazon_Turk_ID]

#head(d_respondents_only)
```

```
# ?register_google
# register_google(key = "AIzaSyCTk2a5vIEqcvgz9KmQmItoNF7J8_hiMMk")

#uses Google API to obtain location data based on longitude and latitude....dont use unless necessary f
# d_respondents_only[ , c("housenumber", "street", "city", "county", "state", "zip", "country") := revg
#
# #head(d_respondents_only)
```

```
#
#
# fwrite(d_respondents_only, file='datatable_clean_survey_responses.dta')

d_respondents <- fread('datatable_clean_survey_responses.dta')
#head(d_respondents)
```

```
#skip

# ?register_google
# register_google(key = "AIzaSyCTk2a5vIEqcvgz9KmQmItoNF7J8_hiMMk")
# ggmap_show_api_key()
#
#
# revgeocode(c(df$lon[1], df$lat[1]))
#
# d_respondents_only[ Q80 == "A1AC47WJLNW4G7", revgeocode(c(as.numeric(LocationLongitude)[1], as.numeri
# ?revgeocode
```

```
#remove duplicate Amazon Turk IDs
nrow(d_respondents)  #381 rows
```

```
## [1] 381
```

```
d_respondents <- d_respondents[ !duplicated(d_respondents$Amazon_Turk_ID) , ]  #378 rows
```

EDA

```
#some EDA

#d_respondents[ , table(state, country)]


table(d_respondents$state, d_respondents$country) %>%
        as.data.frame() %>%
        arrange(desc(Freq))
```

```
##                          Var1           Var2 Freq
## 1                   Tamil Nadu          India  120
## 2                   California  United States   82
## 3                     New York  United States   22
## 4                       Kansas  United States   21
## 5                        Texas  United States   16
## 6                      Florida  United States    9
## 7                Massachusetts  United States    7
## 8                     Michigan  United States    7
## 9                     Missouri  United States    6
## 10                Connecticut  United States    5
## 11                    Georgia  United States    5
## 12                    Indiana  United States    5
## 13                 New Jersey  United States    5
## 14                   Virginia  United States    5
## 15                   Illinois  United States    4
## 16             North Carolina  United States    4
```

```
## 17                     Kerala          India    3
## 18                Maharashtra          India    3
## 19                   Colorado  United States    3
## 20                   Kentucky  United States    3
## 21                   Maryland  United States    3
## 22                     Oregon  United States    3
## 23                    Ontario         Canada    2
## 24                    Alabama  United States    2
## 25                      Idaho  United States    2
## 26                  Minnesota  United States    2
## 27                Mississippi  United States    2
## 28                     Nevada  United States    2
## 29                       Ohio  United States    2
## 30               Pennsylvania  United States    2
## 31                 Washington  United States    2
## 32            Qarku i Tiranës        Albania    1
## 33            Khulna Division     Bangladesh    1
## 34                      Bahia         Brazil    1
## 35                    Atacama          Chile    1
## 36  Provence-Alpes-Côte d'Azur         France    1
## 37    Departamento de Olancho       Honduras    1
## 38              Andhra Pradesh          India    1
## 39                   Karnataka          India    1
## 40                    Sardegna          Italy    1
## 41                     England United Kingdom    1
## 42                     Arizona  United States    1
## 43                        Iowa  United States    1
## 44                   Louisiana  United States    1
## 45                       Maine  United States    1
## 46                    Nebraska  United States    1
## 47                    Oklahoma  United States    1
## 48              South Carolina  United States    1
## 49                South Dakota  United States    1
## 50                   Tennessee  United States    1
## 51                     Alabama        Albania    0
## 52              Andhra Pradesh        Albania    0
## 53                     Arizona        Albania    0
## 54                     Atacama        Albania    0
## 55                       Bahia        Albania    0
## 56                  California        Albania    0
## 57                    Colorado        Albania    0
## 58                 Connecticut        Albania    0
## 59    Departamento de Olancho        Albania    0
## 60                     England        Albania    0
## 61                     Florida        Albania    0
## 62                     Georgia        Albania    0
## 63                       Idaho        Albania    0
## 64                    Illinois        Albania    0
## 65                     Indiana        Albania    0
## 66                        Iowa        Albania    0
## 67                      Kansas        Albania    0
## 68                   Karnataka        Albania    0
## 69                    Kentucky        Albania    0
## 70                      Kerala        Albania    0
```

```
## 71              Khulna Division        Albania    0
## 72                   Louisiana        Albania    0
## 73                 Maharashtra        Albania    0
## 74                       Maine        Albania    0
## 75                    Maryland        Albania    0
## 76                Massachusetts        Albania    0
## 77                    Michigan        Albania    0
## 78                   Minnesota        Albania    0
## 79                 Mississippi        Albania    0
## 80                    Missouri        Albania    0
## 81                    Nebraska        Albania    0
## 82                      Nevada        Albania    0
## 83                  New Jersey        Albania    0
## 84                    New York        Albania    0
## 85                North Carolina        Albania    0
## 86                        Ohio        Albania    0
## 87                    Oklahoma        Albania    0
## 88                     Ontario        Albania    0
## 89                      Oregon        Albania    0
## 90                  Pennsylvania        Albania    0
## 91  Provence-Alpes-Côte d'Azur        Albania    0
## 92                     Sardegna        Albania    0
## 93                South Carolina        Albania    0
## 94                  South Dakota        Albania    0
## 95                    Tamil Nadu        Albania    0
## 96                     Tennessee        Albania    0
## 97                         Texas        Albania    0
## 98                      Virginia        Albania    0
## 99                    Washington        Albania    0
## 100                      Alabama     Bangladesh    0
## 101              Andhra Pradesh     Bangladesh    0
## 102                      Arizona     Bangladesh    0
## 103                      Atacama     Bangladesh    0
## 104                        Bahia     Bangladesh    0
## 105                   California     Bangladesh    0
## 106                     Colorado     Bangladesh    0
## 107                  Connecticut     Bangladesh    0
## 108    Departamento de Olancho     Bangladesh    0
## 109                      England     Bangladesh    0
## 110                      Florida     Bangladesh    0
## 111                      Georgia     Bangladesh    0
## 112                        Idaho     Bangladesh    0
## 113                     Illinois     Bangladesh    0
## 114                      Indiana     Bangladesh    0
## 115                         Iowa     Bangladesh    0
## 116                       Kansas     Bangladesh    0
## 117                    Karnataka     Bangladesh    0
## 118                     Kentucky     Bangladesh    0
## 119                       Kerala     Bangladesh    0
## 120                    Louisiana     Bangladesh    0
## 121                  Maharashtra     Bangladesh    0
## 122                        Maine     Bangladesh    0
## 123                     Maryland     Bangladesh    0
## 124                Massachusetts     Bangladesh    0
```

```
## 125                   Michigan     Bangladesh    0
## 126                  Minnesota     Bangladesh    0
## 127                Mississippi     Bangladesh    0
## 128                   Missouri     Bangladesh    0
## 129                   Nebraska     Bangladesh    0
## 130                     Nevada     Bangladesh    0
## 131                 New Jersey     Bangladesh    0
## 132                   New York     Bangladesh    0
## 133             North Carolina     Bangladesh    0
## 134                       Ohio     Bangladesh    0
## 135                   Oklahoma     Bangladesh    0
## 136                    Ontario     Bangladesh    0
## 137                     Oregon     Bangladesh    0
## 138               Pennsylvania     Bangladesh    0
## 139 Provence-Alpes-Côte d'Azur     Bangladesh    0
## 140             Qarku i Tiranës     Bangladesh    0
## 141                   Sardegna     Bangladesh    0
## 142              South Carolina     Bangladesh    0
## 143                South Dakota     Bangladesh    0
## 144                  Tamil Nadu     Bangladesh    0
## 145                   Tennessee     Bangladesh    0
## 146                       Texas     Bangladesh    0
## 147                    Virginia     Bangladesh    0
## 148                  Washington     Bangladesh    0
## 149                     Alabama         Brazil    0
## 150               Andhra Pradesh         Brazil    0
## 151                     Arizona         Brazil    0
## 152                     Atacama         Brazil    0
## 153                  California         Brazil    0
## 154                    Colorado         Brazil    0
## 155                 Connecticut         Brazil    0
## 156    Departamento de Olancho         Brazil    0
## 157                     England         Brazil    0
## 158                     Florida         Brazil    0
## 159                     Georgia         Brazil    0
## 160                       Idaho         Brazil    0
## 161                    Illinois         Brazil    0
## 162                     Indiana         Brazil    0
## 163                        Iowa         Brazil    0
## 164                      Kansas         Brazil    0
## 165                   Karnataka         Brazil    0
## 166                    Kentucky         Brazil    0
## 167                      Kerala         Brazil    0
## 168             Khulna Division         Brazil    0
## 169                   Louisiana         Brazil    0
## 170                 Maharashtra         Brazil    0
## 171                       Maine         Brazil    0
## 172                    Maryland         Brazil    0
## 173               Massachusetts         Brazil    0
## 174                    Michigan         Brazil    0
## 175                   Minnesota         Brazil    0
## 176                 Mississippi         Brazil    0
## 177                    Missouri         Brazil    0
## 178                    Nebraska         Brazil    0
```

```
## 179                    Nevada         Brazil    0
## 180                New Jersey         Brazil    0
## 181                  New York         Brazil    0
## 182            North Carolina         Brazil    0
## 183                      Ohio         Brazil    0
## 184                  Oklahoma         Brazil    0
## 185                   Ontario         Brazil    0
## 186                    Oregon         Brazil    0
## 187              Pennsylvania         Brazil    0
## 188 Provence-Alpes-Côte d'Azur         Brazil    0
## 189            Qarku i Tiranës         Brazil    0
## 190                  Sardegna         Brazil    0
## 191            South Carolina         Brazil    0
## 192              South Dakota         Brazil    0
## 193                 Tamil Nadu         Brazil    0
## 194                 Tennessee         Brazil    0
## 195                     Texas         Brazil    0
## 196                  Virginia         Brazil    0
## 197                Washington         Brazil    0
## 198                   Alabama         Canada    0
## 199            Andhra Pradesh         Canada    0
## 200                   Arizona         Canada    0
## 201                   Atacama         Canada    0
## 202                     Bahia         Canada    0
## 203                California         Canada    0
## 204                  Colorado         Canada    0
## 205               Connecticut         Canada    0
## 206   Departamento de Olancho         Canada    0
## 207                   England         Canada    0
## 208                   Florida         Canada    0
## 209                   Georgia         Canada    0
## 210                     Idaho         Canada    0
## 211                  Illinois         Canada    0
## 212                   Indiana         Canada    0
## 213                      Iowa         Canada    0
## 214                    Kansas         Canada    0
## 215                 Karnataka         Canada    0
## 216                  Kentucky         Canada    0
## 217                    Kerala         Canada    0
## 218           Khulna Division         Canada    0
## 219                 Louisiana         Canada    0
## 220               Maharashtra         Canada    0
## 221                     Maine         Canada    0
## 222                  Maryland         Canada    0
## 223             Massachusetts         Canada    0
## 224                  Michigan         Canada    0
## 225                 Minnesota         Canada    0
## 226               Mississippi         Canada    0
## 227                  Missouri         Canada    0
## 228                  Nebraska         Canada    0
## 229                    Nevada         Canada    0
## 230                New Jersey         Canada    0
## 231                  New York         Canada    0
## 232            North Carolina         Canada    0
```

```
## 233                      Ohio         Canada    0
## 234                  Oklahoma         Canada    0
## 235                    Oregon         Canada    0
## 236              Pennsylvania         Canada    0
## 237 Provence-Alpes-Côte d'Azur         Canada    0
## 238            Qarku i Tiranës         Canada    0
## 239                  Sardegna         Canada    0
## 240            South Carolina         Canada    0
## 241              South Dakota         Canada    0
## 242                 Tamil Nadu         Canada    0
## 243                 Tennessee         Canada    0
## 244                     Texas         Canada    0
## 245                  Virginia         Canada    0
## 246                Washington         Canada    0
## 247                   Alabama          Chile    0
## 248             Andhra Pradesh          Chile    0
## 249                   Arizona          Chile    0
## 250                     Bahia          Chile    0
## 251                California          Chile    0
## 252                  Colorado          Chile    0
## 253               Connecticut          Chile    0
## 254    Departamento de Olancho          Chile    0
## 255                   England          Chile    0
## 256                   Florida          Chile    0
## 257                   Georgia          Chile    0
## 258                     Idaho          Chile    0
## 259                  Illinois          Chile    0
## 260                   Indiana          Chile    0
## 261                      Iowa          Chile    0
## 262                    Kansas          Chile    0
## 263                 Karnataka          Chile    0
## 264                  Kentucky          Chile    0
## 265                    Kerala          Chile    0
## 266            Khulna Division          Chile    0
## 267                 Louisiana          Chile    0
## 268               Maharashtra          Chile    0
## 269                     Maine          Chile    0
## 270                  Maryland          Chile    0
## 271             Massachusetts          Chile    0
## 272                  Michigan          Chile    0
## 273                 Minnesota          Chile    0
## 274               Mississippi          Chile    0
## 275                  Missouri          Chile    0
## 276                  Nebraska          Chile    0
## 277                    Nevada          Chile    0
## 278                New Jersey          Chile    0
## 279                  New York          Chile    0
## 280            North Carolina          Chile    0
## 281                      Ohio          Chile    0
## 282                  Oklahoma          Chile    0
## 283                   Ontario          Chile    0
## 284                    Oregon          Chile    0
## 285              Pennsylvania          Chile    0
## 286 Provence-Alpes-Côte d'Azur          Chile    0
```

```
## 287            Qarku i Tiranës          Chile    0
## 288                   Sardegna          Chile    0
## 289             South Carolina          Chile    0
## 290               South Dakota          Chile    0
## 291                  Tamil Nadu          Chile    0
## 292                  Tennessee          Chile    0
## 293                      Texas          Chile    0
## 294                   Virginia          Chile    0
## 295                 Washington          Chile    0
## 296                    Alabama         France    0
## 297              Andhra Pradesh         France    0
## 298                    Arizona         France    0
## 299                    Atacama         France    0
## 300                      Bahia         France    0
## 301                 California         France    0
## 302                   Colorado         France    0
## 303                Connecticut         France    0
## 304    Departamento de Olancho         France    0
## 305                    England         France    0
## 306                    Florida         France    0
## 307                    Georgia         France    0
## 308                      Idaho         France    0
## 309                   Illinois         France    0
## 310                    Indiana         France    0
## 311                       Iowa         France    0
## 312                     Kansas         France    0
## 313                  Karnataka         France    0
## 314                   Kentucky         France    0
## 315                     Kerala         France    0
## 316            Khulna Division         France    0
## 317                  Louisiana         France    0
## 318                Maharashtra         France    0
## 319                      Maine         France    0
## 320                   Maryland         France    0
## 321              Massachusetts         France    0
## 322                   Michigan         France    0
## 323                  Minnesota         France    0
## 324                Mississippi         France    0
## 325                   Missouri         France    0
## 326                   Nebraska         France    0
## 327                     Nevada         France    0
## 328                 New Jersey         France    0
## 329                   New York         France    0
## 330              North Carolina         France    0
## 331                       Ohio         France    0
## 332                   Oklahoma         France    0
## 333                    Ontario         France    0
## 334                     Oregon         France    0
## 335                Pennsylvania         France    0
## 336            Qarku i Tiranës         France    0
## 337                   Sardegna         France    0
## 338             South Carolina         France    0
## 339               South Dakota         France    0
## 340                  Tamil Nadu         France    0
```

```
## 341                  Tennessee         France    0
## 342                      Texas         France    0
## 343                   Virginia         France    0
## 344                 Washington         France    0
## 345                    Alabama       Honduras    0
## 346              Andhra Pradesh       Honduras    0
## 347                    Arizona       Honduras    0
## 348                    Atacama       Honduras    0
## 349                      Bahia       Honduras    0
## 350                 California       Honduras    0
## 351                   Colorado       Honduras    0
## 352                Connecticut       Honduras    0
## 353                    England       Honduras    0
## 354                    Florida       Honduras    0
## 355                    Georgia       Honduras    0
## 356                      Idaho       Honduras    0
## 357                   Illinois       Honduras    0
## 358                    Indiana       Honduras    0
## 359                       Iowa       Honduras    0
## 360                     Kansas       Honduras    0
## 361                  Karnataka       Honduras    0
## 362                   Kentucky       Honduras    0
## 363                     Kerala       Honduras    0
## 364             Khulna Division       Honduras    0
## 365                  Louisiana       Honduras    0
## 366                Maharashtra       Honduras    0
## 367                      Maine       Honduras    0
## 368                   Maryland       Honduras    0
## 369                Massachusetts       Honduras    0
## 370                   Michigan       Honduras    0
## 371                  Minnesota       Honduras    0
## 372                Mississippi       Honduras    0
## 373                   Missouri       Honduras    0
## 374                   Nebraska       Honduras    0
## 375                     Nevada       Honduras    0
## 376                 New Jersey       Honduras    0
## 377                   New York       Honduras    0
## 378             North Carolina       Honduras    0
## 379                       Ohio       Honduras    0
## 380                   Oklahoma       Honduras    0
## 381                    Ontario       Honduras    0
## 382                     Oregon       Honduras    0
## 383               Pennsylvania       Honduras    0
## 384 Provence-Alpes-Côte d'Azur       Honduras    0
## 385             Qarku i Tiranës       Honduras    0
## 386                    Sardegna       Honduras    0
## 387             South Carolina       Honduras    0
## 388               South Dakota       Honduras    0
## 389                 Tamil Nadu       Honduras    0
## 390                  Tennessee       Honduras    0
## 391                      Texas       Honduras    0
## 392                   Virginia       Honduras    0
## 393                 Washington       Honduras    0
## 394                    Alabama          India    0
```

```
## 395                    Arizona          India    0
## 396                    Atacama          India    0
## 397                      Bahia          India    0
## 398                 California          India    0
## 399                   Colorado          India    0
## 400                Connecticut          India    0
## 401    Departamento de Olancho          India    0
## 402                    England          India    0
## 403                    Florida          India    0
## 404                    Georgia          India    0
## 405                      Idaho          India    0
## 406                   Illinois          India    0
## 407                    Indiana          India    0
## 408                       Iowa          India    0
## 409                     Kansas          India    0
## 410                   Kentucky          India    0
## 411            Khulna Division          India    0
## 412                  Louisiana          India    0
## 413                      Maine          India    0
## 414                   Maryland          India    0
## 415              Massachusetts          India    0
## 416                   Michigan          India    0
## 417                  Minnesota          India    0
## 418                Mississippi          India    0
## 419                   Missouri          India    0
## 420                   Nebraska          India    0
## 421                     Nevada          India    0
## 422                 New Jersey          India    0
## 423                   New York          India    0
## 424             North Carolina          India    0
## 425                       Ohio          India    0
## 426                   Oklahoma          India    0
## 427                    Ontario          India    0
## 428                     Oregon          India    0
## 429               Pennsylvania          India    0
## 430 Provence-Alpes-Côte d'Azur          India    0
## 431            Qarku i Tiranës          India    0
## 432                   Sardegna          India    0
## 433             South Carolina          India    0
## 434               South Dakota          India    0
## 435                  Tennessee          India    0
## 436                      Texas          India    0
## 437                   Virginia          India    0
## 438                 Washington          India    0
## 439                    Alabama          Italy    0
## 440              Andhra Pradesh          Italy    0
## 441                    Arizona          Italy    0
## 442                    Atacama          Italy    0
## 443                      Bahia          Italy    0
## 444                 California          Italy    0
## 445                   Colorado          Italy    0
## 446                Connecticut          Italy    0
## 447    Departamento de Olancho          Italy    0
## 448                    England          Italy    0
```

```
## 449                   Florida          Italy    0
## 450                   Georgia          Italy    0
## 451                     Idaho          Italy    0
## 452                  Illinois          Italy    0
## 453                   Indiana          Italy    0
## 454                      Iowa          Italy    0
## 455                    Kansas          Italy    0
## 456                 Karnataka          Italy    0
## 457                  Kentucky          Italy    0
## 458                    Kerala          Italy    0
## 459            Khulna Division          Italy    0
## 460                 Louisiana          Italy    0
## 461               Maharashtra          Italy    0
## 462                     Maine          Italy    0
## 463                  Maryland          Italy    0
## 464             Massachusetts          Italy    0
## 465                  Michigan          Italy    0
## 466                 Minnesota          Italy    0
## 467               Mississippi          Italy    0
## 468                  Missouri          Italy    0
## 469                  Nebraska          Italy    0
## 470                    Nevada          Italy    0
## 471                New Jersey          Italy    0
## 472                  New York          Italy    0
## 473            North Carolina          Italy    0
## 474                      Ohio          Italy    0
## 475                  Oklahoma          Italy    0
## 476                   Ontario          Italy    0
## 477                    Oregon          Italy    0
## 478              Pennsylvania          Italy    0
## 479 Provence-Alpes-Côte d'Azur          Italy    0
## 480            Qarku i Tiranës          Italy    0
## 481             South Carolina          Italy    0
## 482               South Dakota          Italy    0
## 483                  Tamil Nadu          Italy    0
## 484                  Tennessee          Italy    0
## 485                      Texas          Italy    0
## 486                   Virginia          Italy    0
## 487                 Washington          Italy    0
## 488                    Alabama United Kingdom    0
## 489              Andhra Pradesh United Kingdom    0
## 490                    Arizona United Kingdom    0
## 491                    Atacama United Kingdom    0
## 492                      Bahia United Kingdom    0
## 493                 California United Kingdom    0
## 494                   Colorado United Kingdom    0
## 495                Connecticut United Kingdom    0
## 496    Departamento de Olancho United Kingdom    0
## 497                    Florida United Kingdom    0
## 498                    Georgia United Kingdom    0
## 499                      Idaho United Kingdom    0
## 500                   Illinois United Kingdom    0
## 501                    Indiana United Kingdom    0
## 502                       Iowa United Kingdom    0
```

```
## 503                    Kansas United Kingdom    0
## 504                 Karnataka United Kingdom    0
## 505                  Kentucky United Kingdom    0
## 506                    Kerala United Kingdom    0
## 507            Khulna Division United Kingdom    0
## 508                 Louisiana United Kingdom    0
## 509               Maharashtra United Kingdom    0
## 510                     Maine United Kingdom    0
## 511                  Maryland United Kingdom    0
## 512             Massachusetts United Kingdom    0
## 513                  Michigan United Kingdom    0
## 514                 Minnesota United Kingdom    0
## 515               Mississippi United Kingdom    0
## 516                  Missouri United Kingdom    0
## 517                  Nebraska United Kingdom    0
## 518                    Nevada United Kingdom    0
## 519                New Jersey United Kingdom    0
## 520                  New York United Kingdom    0
## 521            North Carolina United Kingdom    0
## 522                      Ohio United Kingdom    0
## 523                  Oklahoma United Kingdom    0
## 524                   Ontario United Kingdom    0
## 525                    Oregon United Kingdom    0
## 526              Pennsylvania United Kingdom    0
## 527 Provence-Alpes-Côte d'Azur United Kingdom    0
## 528            Qarku i Tiranës United Kingdom    0
## 529                  Sardegna United Kingdom    0
## 530            South Carolina United Kingdom    0
## 531              South Dakota United Kingdom    0
## 532                 Tamil Nadu United Kingdom    0
## 533                 Tennessee United Kingdom    0
## 534                     Texas United Kingdom    0
## 535                  Virginia United Kingdom    0
## 536                Washington United Kingdom    0
## 537             Andhra Pradesh  United States    0
## 538                    Atacama  United States    0
## 539                      Bahia  United States    0
## 540    Departamento de Olancho  United States    0
## 541                    England  United States    0
## 542                 Karnataka  United States    0
## 543                    Kerala  United States    0
## 544            Khulna Division  United States    0
## 545                Maharashtra  United States    0
## 546                    Ontario  United States    0
## 547 Provence-Alpes-Côte d'Azur  United States    0
## 548            Qarku i Tiranës  United States    0
## 549                  Sardegna  United States    0
## 550                 Tamil Nadu  United States    0
```

```
table(d_respondents$country) %>%
        as.data.frame() %>%
        arrange(desc(Freq))
```

```
##             Var1 Freq
## 1  United States  240
```

```
## 2           India  128
## 3          Canada    2
## 4         Albania    1
## 5      Bangladesh    1
## 6          Brazil    1
## 7           Chile    1
## 8          France    1
## 9        Honduras    1
## 10          Italy    1
## 11 United Kingdom    1
```

```
table(d_respondents$Total_Score) %>%
  as.data.frame() %>%
  arrange(desc(Var1))
```

```
##    Var1 Freq
## 1    27    1
## 2    26    1
## 3    25    4
## 4    24   13
## 5    23   15
## 6    22   16
## 7    21   23
## 8    20   27
## 9    19   21
## 10   18   32
## 11   17   40
## 12   16   40
## 13   15   46
## 14   14   31
## 15   13   19
## 16   12   19
## 17   11   13
## 18   10   13
## 19    9    3
## 20    8    1
```

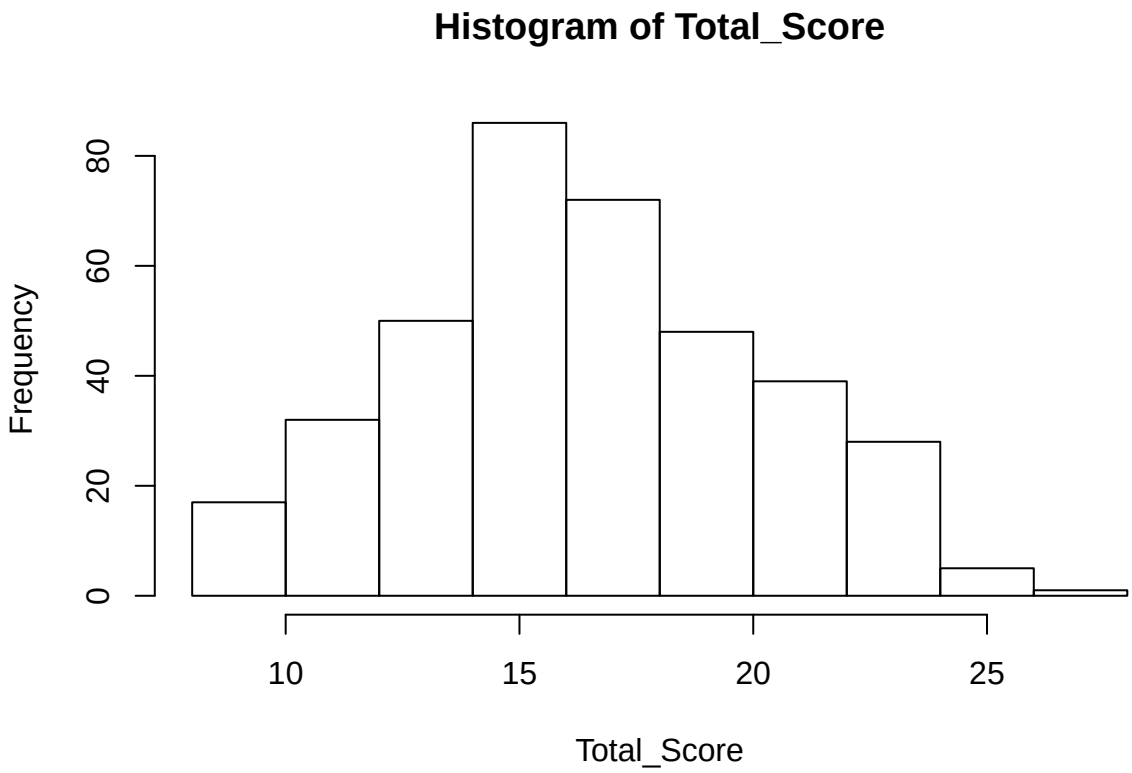
```
d_respondents %>%
  group_by(Assignment_Group) %>%
  summarise(mean = mean(Total_Score),
            count = n(),
            time_duration = mean(`Duration (in seconds)`))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
## # A tibble: 5 x 4
##   Assignment_Group  mean count time_duration
##   <chr>            <dbl> <int>         <dbl>
## 1 Control           16.4    76          623.
## 2 Medical Feedback  17.6    76          646.
## 3 Negative Images   16.5    77          772.
## 4 Positive Images   17.0    76          514.
## 5 Self-Reflect      17.0    73          609.
```

```
#d_respondents[ , .(count = .N, avg = mean(Total_Score)), by=Assignment_Group] #same thing
```

```
d_respondents[ , hist(Total_Score)]
```




```
## $breaks
##  [1]  8 10 12 14 16 18 20 22 24 26 28
##
## $counts
##  [1] 17 32 50 86 72 48 39 28  5  1
##
## $density
##  [1] 0.022486772 0.042328042 0.066137566 0.113756614 0.095238095 0.063492063
##  [7] 0.051587302 0.037037037 0.006613757 0.001322751
##
## $mids
##  [1]  9 11 13 15 17 19 21 23 25 27
##
## $xname
## [1] "Total_Score"
##
## $equidist
## [1] TRUE
##
## attr(,"class")
## [1] "histogram"
```

```
tapply(d_respondents$Total_Score, d_respondents$Assignment_Group, summary)
```

```
## $Control
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    8.00   14.00   16.00   16.41   19.00   24.00
##
```

```
## $`Medical Feedback`
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   10.00   15.00   17.00   17.61   20.00   24.00
##
## $`Negative Images`
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    9.00   14.00   16.00   16.45   19.00   25.00
##
## $`Positive Images`
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    9.00   14.00   17.00   17.04   20.00   27.00
##
## $`Self-Reflect`
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    9.00   14.00   17.00   16.99   20.00   25.00
```

```
tapply(d_respondents$Total_Score, d_respondents$Assignment_Group, sd)
```

```
##          Control Medical Feedback  Negative Images  Positive Images
##         3.666707         3.417909         3.881622         3.930872
##     Self-Reflect
##         3.970352
```

```
d_respondents[ , sd(Total_Score)]
```

```
## [1] 3.783594
```

Randomization Check

```
#http://www.sthda.com/english/wiki/chi-square-goodness-of-fit-test-in-r

respondent_counts <- d_respondents[ , .(.N), keyby=Assignment_Group][,2]

respondent_counts_chisq_test <- chisq.test(respondent_counts, p=c(1/5, 1/5, 1/5, 1/5, 1/5))

respondent_counts_chisq_test
```

```
##
##  Chi-squared test for given probabilities
##
## data:  respondent_counts
## X-squared = 0.12169, df = 4, p-value = 0.9982
```

```
#p-value = 0.9982, which is greater than significance level of 0.05.
#We can conclude that the observed proportions are not significantly different from the expected propor
```

Covariate Balance Check

```
d_respondents %>%
  group_by(Assignment_Group) %>%
  summarise(num_respondents = n(),
            pre_treatment_avg = mean(TaskPhase1_Score),
            taskphase2_avg = mean(TaskPhase2_Score),
            taskphase3_avg = mean(TaskPhase3_Score))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
## # A tibble: 5 x 5
##   Assignment_Group num_respondents pre_treatment_a~ taskphase2_avg
##   <chr>                      <int>            <dbl>          <dbl>
## 1 Control                       76             5.95           4.55
## 2 Medical Feedback              76             6.41           5.32
## 3 Negative Images               77             5.71           4.91
## 4 Positive Images               76             6.16           5.13
## 5 Self-Reflect                  73             5.90           5.16
## # ... with 1 more variable: taskphase3_avg <dbl>
```

```
#check balance between age-range, education, age
d_respondents[ , table(Assignment_Group, Gender)]
```

```
##                   Gender
## Assignment_Group   Female Male
##   Control              27   49
##   Medical Feedback     31   45
##   Negative Images      31   46
##   Positive Images      31   45
##   Self-Reflect         30   43
```

```
chisq.test(d_respondents[ , table(Assignment_Group, Gender)])
```

```
##
##  Pearson's Chi-squared test
##
## data:  d_respondents[, table(Assignment_Group, Gender)]
## X-squared = 0.69794, df = 4, p-value = 0.9516
```

```
d_respondents[ , table(Assignment_Group, Age_Range)]
```

```
##                   Age_Range
## Assignment_Group   18-24 25-34 35-44 45-54 55-64 Above 65
##   Control              5    39    14     8     9        1
##   Medical Feedback     5    40    16     7     6        2
##   Negative Images      4    41    16     9     7        0
##   Positive Images      4    34    21     6    11        0
##   Self-Reflect         4    37    10    12     9        1
```

```
# expected frequency count for each cell of the contingency table should be at least 5. Since this is n
# https://stats.stackexchange.com/questions/81483/warning-in-r-chi-squared-approximation-may-be-incorre
chisq.test(d_respondents[ , table(Assignment_Group, Age_Range)],simulate.p.value = TRUE)
```

```
##
##  Pearson's Chi-squared test with simulated p-value (based on 2000
##  replicates)
##
## data:  d_respondents[, table(Assignment_Group, Age_Range)]
## X-squared = 12.953, df = NA, p-value = 0.8886
```

```
d_respondents[ , table(Assignment_Group, Education_Level)]
```

```
##                   Education_Level
## Assignment_Group   Associate's degree Bachelor's degree High school
##   Control                           3                47           1
##   Medical Feedback                  0                59           1
##   Negative Images                   2                54           3
##   Positive Images                   4                50           0
```

```
##   Self-Reflect                        4                49           7
##                    Education_Level
## Assignment_Group   Master's degree and above Some high school Trade school
##   Control                                 22                2            1
##   Medical Feedback                        15                0            1
##   Negative Images                         14                1            3
##   Positive Images                         20                0            2
##   Self-Reflect                            12                0            1
```

```
chisq.test(d_respondents[ , table(Assignment_Group, Education_Level)],simulate.p.value = TRUE)
```

```
##
##  Pearson's Chi-squared test with simulated p-value (based on 2000
##  replicates)
##
## data:  d_respondents[, table(Assignment_Group, Education_Level)]
## X-squared = 30.851, df = NA, p-value = 0.04198
```

```
#let's consider adding age bins and education bins

d_respondents[ Age_Range == "18-24", age_bin := 1]
d_respondents[ Age_Range == "25-34", age_bin := 2]
d_respondents[ Age_Range == "35-44", age_bin := 3]
d_respondents[ Age_Range == "45-54", age_bin := 4]
d_respondents[ Age_Range == "55-64", age_bin := 5]
d_respondents[ Age_Range == "Above 65", age_bin := 6]

d_respondents[ Education_Level == "Associate's degree", edu_bin := 1]
d_respondents[ Education_Level == "Bachelor's degree", edu_bin := 2]
d_respondents[ Education_Level == "High school", edu_bin := 3]
d_respondents[ Education_Level == "Master's degree and above", edu_bin := 4]
d_respondents[ Education_Level == "Some high school", edu_bin := 5]
d_respondents[ Education_Level == "Trade school", edu_bin := 6]

d_respondents[ Assignment_Group == "Control", assign_bin := 1]
d_respondents[ Assignment_Group == "Medical Feedback", assign_bin := 2]
d_respondents[ Assignment_Group == "Negative Images", assign_bin := 3]
d_respondents[ Assignment_Group == "Positive Images", assign_bin := 4]
d_respondents[ Assignment_Group == "Self-Reflect", assign_bin := 5]

#head(d_respondents)
```

```
d_respondents[ , Treatment_Dummy := ifelse(Assignment_Group != "Control", 1, 0)]
#head(d_respondents)
```

```
d_respondents[ Treatment_Dummy == 1, mean(Total_Score)] - d_respondents[ Treatment_Dummy == 0, mean(Tota
```

```
## [1] 0.6119728
```

```
sd(d_respondents$Total_Score)
```

```
## [1] 3.783594
```

```
d_respondents[ , lm(Total_Score ~ Education_Level)]
```

```
##
## Call:
```

```
## lm(formula = Total_Score ~ Education_Level)
##
## Coefficients:
##                                 (Intercept)
##                                    19.15385
##          Education_LevelBachelor's degree
##                                    -2.48975
##                Education_LevelHigh school
##                                     0.09615
## Education_LevelMaster's degree and above
##                                    -2.34662
##           Education_LevelSome high school
##                                    -3.15385
##               Education_LevelTrade school
##                                    -0.65385
```

```
d_respondents[ , ivreg(Total_Score ~ Education_Level | Assignment_Group)]
```

```
## Warning in ivreg.fit(X, Y, Z, weights, offset, ...): more regressors than
## instruments
```

```
##
## Call:
## ivreg(formula = Total_Score ~ Education_Level | Assignment_Group)
##
## Coefficients:
##                                 (Intercept)
##                                       5.097
##          Education_LevelBachelor's degree
##                                      11.909
##                Education_LevelHigh school
##                                      13.868
## Education_LevelMaster's degree and above
##                                      15.609
##           Education_LevelSome high school
##                                     -28.680
##               Education_LevelTrade school
##                                          NA
```

```
power.t.test( delta = 1.2, sd=3.78, sig.level = 0.05, power=0.8)
```

```
##
##      Two-sample t test power calculation
##
##               n = 156.7272
##           delta = 1.2
##              sd = 3.78
##       sig.level = 0.05
##           power = 0.8
##     alternative = two.sided
##
## NOTE: n is number in *each* group
```

Analysis

Helper Functions

```
get_robust_se <- function(model){
  # Get robust SE for use in stargazer
  vcov <- vcovHC(model)
  return(sqrt(diag(vcov)))
}
```

Total Score Analysis

```
#does treatment have an effect on total score?
mod1 <- d_respondents[, lm(Total_Score ~ Treatment_Dummy)]

#does treatment and pretreatment score have an effect on total score?
mod2 <- d_respondents[, lm(Total_Score ~ Treatment_Dummy + TaskPhase1_Score)]

stargazer(mod1,
          mod2,
          se = list(get_robust_se(mod1),get_robust_se(mod2)),
          type='text')
```

```
##
## ===============================================================
##                                 Dependent variable:
##                     ------------------------------------------
##                                       Total_Score
##                             (1)                   (2)
## ---------------------------------------------------------------
## Treatment_Dummy            0.612                 0.476
##                           (0.477)               (0.325)
##
## TaskPhase1_Score                                1.374***
##                                                 (0.111)
##
## Constant                 16.408***              8.238***
##                           (0.423)               (0.708)
##
## ---------------------------------------------------------------
## Observations                378                   378
## R2                         0.004                 0.493
## Adjusted R2                0.002                 0.490
## Residual Std. Error  3.781 (df = 376)       2.702 (df = 375)
## F Statistic         1.591 (df = 1; 376) 182.159*** (df = 2; 375)
## ===============================================================
## Note:                                *p<0.1; **p<0.05; ***p<0.01
```

Task Phase 2 Analysis

```
# does any treatment have an effect on task phase 2 score?
mod_task2_a <- d_respondents[, lm(TaskPhase2_Score ~ Treatment_Dummy)]
```

```
mod_task2_b <- d_respondents[, lm(TaskPhase2_Score ~ Treatment_Dummy +
                                                     TaskPhase1_Score +
                                                     as.factor(Gender) +
                                                     as.factor(Education_Level) +
                                                     as.factor(Age_Range))]

stargazer(mod_task2_a,
          mod_task2_b,
          se = list(get_robust_se(mod_task2_a),get_robust_se(mod_task2_b)),
          omit = c("Education_Level","Age_Range"),
          add.lines = list(c('Education Fixed Effects', 'No','Yes'),
                           c('Age Fixed Effects','No','Yes')),
          type='text')
```

```
##
## ===============================================================
##                                   Dependent variable:
##                               ----------------------------------
##                                       TaskPhase2_Score
##                                  (1)                  (2)
## ---------------------------------------------------------------
## Treatment_Dummy               0.577***              0.511**
##                                (0.211)              (0.217)
##
## TaskPhase1_Score                                    0.331***
##                                                     (0.065)
##
## as.factor(Gender)Male                               -0.041
##                                                     (0.172)
##
## Constant                      4.553***              2.051**
##                                (0.185)              (0.852)
##
## ---------------------------------------------------------------
## Education Fixed Effects          No                   Yes
## Age Fixed Effects                No                   Yes
## Observations                     378                  378
## R2                              0.018                0.172
## Adjusted R2                     0.015                0.142
## Residual Std. Error       1.736 (df = 376)     1.619 (df = 364)
## F Statistic             6.699** (df = 1; 376) 5.815*** (df = 13; 364)
## ===============================================================
## Note:                                   *p<0.1; **p<0.05; ***p<0.01
```

```
#does the specific treatment group have an effect on task phase 2 score?
mod_task2_c <- d_respondents[, lm(TaskPhase2_Score ~ as.factor(Assignment_Group))]

mod_task2_d <- d_respondents[, lm(TaskPhase2_Score ~ as.factor(Assignment_Group) +
                                                     TaskPhase1_Score +
                                                     as.factor(Gender) +
                                                     as.factor(Education_Level) +
                                                     as.factor(Age_Range))]

# Do you think that there are features of the data that might systematically predict that people will r
```

```r
# TODO update this heterogeneity issue. I'm not quite sure this applies because they're both considered
# mod5 <- d_respondents[, lm(TaskPhase2_Score ~ Treatment_Dummy + as.factor(assign_bin) +
#                              Treatment_Dummy * as.factor(assign_bin))]
stargazer(mod_task2_c,
          mod_task2_d,
          se = list(get_robust_se(mod_task2_c),get_robust_se(mod_task2_d)),
          omit = c("Education_Level","Age_Range"),
          add.lines = list(c('Education Fixed Effects', 'No','Yes'),
                           c('Age Fixed Effects','No','Yes')),
          type='text')
```

```
##
## ===============================================================================================
##                                                    Dependent variable:
##                                                -----------------------------------------
##                                                          TaskPhase2_Score
##                                                      (1)                    (2)
## -----------------------------------------------------------------------------------------------
## as.factor(Assignment_Group)Medical Feedback       0.763***               0.602**
##                                                   (0.291)                (0.284)
##
## as.factor(Assignment_Group)Negative Images         0.356                  0.400
##                                                   (0.254)                (0.254)
##
## as.factor(Assignment_Group)Positive Images        0.579**                0.514*
##                                                   (0.286)                (0.273)
##
## as.factor(Assignment_Group)Self-Reflect           0.612**                0.535*
##                                                   (0.272)                (0.288)
##
## TaskPhase1_Score                                                        0.327***
##                                                                         (0.065)
##
## as.factor(Gender)Male                                                   -0.039
##                                                                         (0.174)
##
## Constant                                          4.553***               2.085**
##                                                   (0.185)                (0.853)
##
## -----------------------------------------------------------------------------------------------
## Education Fixed Effects                              No                     Yes
## Age Fixed Effects                                    No                     Yes
## Observations                                        378                    378
## R2                                                 0.023                  0.173
## Adjusted R2                                        0.013                  0.137
## Residual Std. Error                          1.738 (df = 373)       1.625 (df = 361)
## F Statistic                                2.206* (df = 4; 373) 4.731*** (df = 16; 361)
## ===============================================================================================
## Note:                                                          *p<0.1; **p<0.05; ***p<0.01
```

Task Phase 3 Analysis

```r
# test final task and any treatment
mod_task3_a <- d_respondents[, lm(TaskPhase3_Score ~ Treatment_Dummy)]
mod_task3_b <- d_respondents[, lm(TaskPhase3_Score ~ Treatment_Dummy +
                                                     TaskPhase1_Score +
                                                     as.factor(Gender) +
                                                     as.factor(Education_Level) +
                                                     as.factor(Age_Range))]

stargazer(mod_task3_a,
          mod_task3_b,
          se = list(get_robust_se(mod_task3_a),get_robust_se(mod_task3_b)),
          omit = c("Education_Level","Age_Range"),
          add.lines = list(c('Education Fixed Effects', 'No','Yes'),
                           c('Age Fixed Effects','No','Yes')),
          type='text')
```

```
##
## ===============================================================
##                                 Dependent variable:
##                             ----------------------------------
##                                      TaskPhase3_Score
##                                (1)                  (2)
## ---------------------------------------------------------------
## Treatment_Dummy               0.115                0.106
##                              (0.184)              (0.187)
##
## TaskPhase1_Score                                  0.213***
##                                                   (0.064)
##
## as.factor(Gender)Male                             -0.011
##                                                   (0.165)
##
## Constant                    5.316***             4.508***
##                              (0.156)              (0.753)
##
## ---------------------------------------------------------------
## Education Fixed Effects        No                   Yes
## Age Fixed Effects              No                   Yes
## Observations                   378                  378
## R2                            0.001                0.100
## Adjusted R2                  -0.002                0.068
## Residual Std. Error      1.638 (df = 376)     1.580 (df = 364)
## F Statistic             0.298 (df = 1; 376) 3.102*** (df = 13; 364)
## ===============================================================
## Note:                                *p<0.1; **p<0.05; ***p<0.01
```

```r
# test final task and specific treatment
mod_task3_c <- d_respondents[, lm(TaskPhase3_Score ~ as.factor(Assignment_Group))]
mod_task3_d <- d_respondents[, lm(TaskPhase3_Score ~ as.factor(Assignment_Group) +
                                                     TaskPhase1_Score +
                                                     as.factor(Gender) +
                                                     as.factor(Education_Level) +
                                                     as.factor(Age_Range))]
```

```r
stargazer(mod_task3_c,
          mod_task3_d,
          se = list(get_robust_se(mod_task3_c),get_robust_se(mod_task3_d)),
          omit = c("Education_Level","Age_Range"),
          add.lines = list(c('Education Fixed Effects', 'No','Yes'),
                           c('Age Fixed Effects','No','Yes')),
          type='text')
```

```
##
## ===============================================================================================
##                                                    Dependent variable:
##                                                -----------------------------------------
##                                                          TaskPhase3_Score
##                                                      (1)                    (2)
## -----------------------------------------------------------------------------------------------
## as.factor(Assignment_Group)Medical Feedback         0.368                  0.252
##                                                    (0.264)                (0.255)
##
## as.factor(Assignment_Group)Negative Images         -0.043                  0.035
##                                                    (0.257)                (0.254)
##
## as.factor(Assignment_Group)Positive Images          0.026                  0.058
##                                                    (0.238)                (0.240)
##
## as.factor(Assignment_Group)Self-Reflect             0.109                  0.083
##                                                    (0.245)                (0.257)
##
## TaskPhase1_Score                                                          0.208***
##                                                                           (0.062)
##
## as.factor(Gender)Male                                                     -0.009
##                                                                           (0.166)
##
## Constant                                          5.316***               4.568***
##                                                    (0.156)                (0.743)
##
## -----------------------------------------------------------------------------------------------
## Education Fixed Effects                              No                     Yes
## Age Fixed Effects                                    No                     Yes
## Observations                                        378                    378
## R2                                                 0.008                  0.102
## Adjusted R2                                       -0.003                  0.062
## Residual Std. Error                        1.638 (df = 373)       1.585 (df = 361)
## F Statistic                               0.764 (df = 4; 373) 2.559*** (df = 16; 361)
## ===============================================================================================
## Note:                                                          *p<0.1; **p<0.05; ***p<0.01
```

```r
# qmplot(LocationLongitude, LocationLatitude, data = d_respondents, geom = "blank",
#   zoom = 1, maptype = "toner-background", darken = .7, legend = "topleft")
# # ) +
# #   stat_density_2d(aes(fill = ..level..), geom = "polygon", alpha = .3, color = NA) +
# #   scale_fill_gradient2("Robbery\nPropensity", low = "white", mid = "yellow", high = "red", midpoint
#
# d_respondents[ , qmplot(LocationLongitude, LocationLatitude, geom="blank", zoom = 1)]
```