

Bass Connections

```
library(tidyverse)
survey <- read_csv("Nov4ModifiedCSV.csv")
view(survey)
glimpse(survey)
```

```
## Rows: 115
## Columns: 116
## $ `Start Date`
## $ `End Date`
## $ `Response Type`
## $ `IP Address`
## $ Progress
## $ `Duration (in seconds)`
## $ Finished
## $ `Please select the most relevant choice.`
## $ `Please select the option that best applies to you.`
## $ `What musical instrument(s) do you play?`
## $ `How long have you been playing?`
## $ HowLongPlayingFormatted
## $ `How many hours per day do you currently play your instrument(s)?`
## $ HoursPerDayFormatted
## $ `How many hours per day or per week do you currently play your instrument(s)? (Please specify per`
## $ `What are your major musical genres? - Selected Choice`
## $ `What are your major musical genres? - Other - Text`
## $ `When did you initiate your career in conducting and how?`
## $ `Please state your music experience in the levels of music training given below. - High school - M`
## $ `Please state your music experience in the levels of music training given below. - Some college - L`
## $ `Please state your music experience in the levels of music training given below. - Associate's degr`
## $ `Please state your music experience in the levels of music training given below. - Bachelor's degr`
## $ `Please state your music experience in the levels of music training given below. - Master's degree`
## $ `Please state your music experience in the levels of music training given below. - PhD or professi`
## $ `If applicable, what other types of musical training did you receive?`
## $ `Have you completed any music examinations, juries, or received awards?`
## $ `When, where, and which ones? (Referring to music examinations, juries, awards)`
## $ `What are the most enjoyable aspects of your musical life?`
## $ `What are some of your most vivid music-related memories?`
## $ `Do you have memories that also include specific musical moments (performing, listening, etc.)?`
## $ `Can a piece of music take you to a different place and time?`
## $ `Please share some examples of music making taking you to a different place and time.`
## $ `With whom do you play music?`
## $ `Are there any musicians in your family or amongst your friends?`
## $ `How has your family's/friend's musicianship impacted you?`
## $ `How has COVID-19 affected your ability to be a musician?`
## $ `Which of the following performance and rehearsal options are currently available to you?`
## $ PRIVLESSONSPre
## $ PRIVLESSONSDuring
## $ COURSEWORKPre
```

```

## $ COURSEWORKDuring
## $ WARMUPPre
## $ WARMUPDuring
## $ FORMALTRAININGPre
## $ FORMALTRAININGDuring
## $ PERFORMANCEPre
## $ PERFORMANCEDuring
## $ REHEARSALPre
## $ REHEARSALDuring
## $ `In what way has COVID-19 affected your income from music?`
## $ `In what way has COVID-19 affected available rehearsal/practice space for you?`
## $ `In what way has COVID-19 affected your motivation to play?`
## $ `Please share any additional information on how COVID-19 has affected your ability to be a musician?`
## $ `Please list all of the countries where you have lived and the length of time, including your birthplace?`
## $ `Please list the first language(s) of your parent(s)/guardian(s).`
## $ `Where did your parent(s)/guardian(s) grow up?`
## $ `What languages(s) does your family use with you (distinguish context if different for each language)?`
## $ `What exposure have you had to your first language, second language, ... n-th language in your family?`
## $ `What exposure have you had to your first language, second language, ... n-th language in your community?`
## $ `What exposure have you had to your first language, second language, ... n-th language in your school?`
## $ `In which countries do you have relatives and friends whom you visit frequently?`
## $ `How has COVID-19 affected your ability to interact as a bi/multilingual and use languages?`
## $ `In what way has COVID-19 affected your accessibility to persons in your bi- and multilingual community?`
## $ `In what way has COVID-19 affected travel for you?`
## $ `In what ways has COVID-19 impacted your interactions with others in general?`
## $ `In what ways has COVID-19 impacted your income?`
## $ `In what ways has COVID-19 impacted your course delivery of language courses?`
## $ `Please share any comments about language learning and/or teaching during COVID-19 if you are a student?`
## $ HIGHSCOOLLANGSTUDIED
## $ HIGHSCHOOLSEMESTERS
## $ HIGHSCHOOLINSTRUCTION
## $ SOMECOLLEGELANGSTUDIED
## $ SOMECOLLEGESEMESTERS
## $ SOMECOLLEGEINSTRUCTION
## $ ASSOCIATESLANGSTUDIED
## $ ASSOCIATESSEMESTERS
## $ ASSOCIATESINSTRUCTION
## $ BACHELORSLANGSTUDIED
## $ BACHELORSSEMESTERS
## $ BACHELORSINSTRUCTION
## $ MASTERSLANGSTUDIED
## $ MASTERSSEMESTERS
## $ MASTERSINSTRUCTION
## $ PHDLANGSTUDIED
## $ PHDSEMESTERS
## $ PHDINSTRUCTION
## $ `Have you taken the SAT-II, IB, AP, Oral Proficiency, TOEFL, or other standardized tests of a language?`
## $ `Why did you decide to learn your second language?`
## $ `Do you have ADHD /ADD or any other learning disorders or cognitive impairment? If yes, please explain.`
## $ `Do you have any history of hearing or visual problems? If yes, please explain.`
## $ FIRSTPROFICIENCY
## $ FIRSTAGE
## $ FIRSTOFTENREAD
## $ FIRSTOFTENWRITE

```

```
## $ FIRSTOFTENSPEAK
## $ FIRSTOFTENLISTEN
## $ SECONDPROFICIENCY
## $ SECONDAGE
## $ SECONDOFTENREAD
## $ SECONDOFTENWRITE
## $ SECONDOFTENSPEAK
## $ SECONDOFTENLISTEN
## $ THIRDPROFICIENCY
## $ THIRDAge
## $ THIRDOFTENREAD
## $ THIRDOFTENWRITE
## $ THIRDOFTENSPEAK
## $ THIRDOFTENLISTEN
## $ FOURTHPROFICIENCY
## $ FOURTHAGE
## $ FOURTHOFTENREAD
## $ FOURTHOFTENWRITE
## $ FOURTHOFTENSPEAK
## $ FOURTHOFTENLISTEN
## $ Age
## $ Gender
```

```
survey %>%
  count(`Finished`)
```

```
## # A tibble: 2 x 2
##   Finished     n
##   <lgl>    <int>
## 1 FALSE      49
## 2 TRUE       66
```

```
survey$PRIVLESSONSDuring <- as.numeric(survey$PRIVLESSONSDuring)
survey$PRIVLESSONSPre <- as.numeric(survey$PRIVLESSONSPre)
```

```
## Warning: NAs introduced by coercion
```

```
survey$COURSEWORKPre <- as.numeric(survey$COURSEWORKPre)
survey$COURSEWORKDuring <- as.numeric(survey$COURSEWORKDuring)
```

```
## Warning: NAs introduced by coercion
```

```
survey$WARMUPPre <- as.numeric(survey$WARMUPPre)
survey$WARMUPDuring <- as.numeric(survey$WARMUPDuring)

survey$FORMALTRAININGPre <- as.numeric(survey$FORMALTRAININGPre)
survey$FORMALTRAININGDuring <- as.numeric(survey$FORMALTRAININGDuring)

survey$PERFORMANCEPre <- as.numeric(survey$PERFORMANCEPre)
survey$PERFORMANCEDuring <- as.numeric(survey$PERFORMANCEDuring)

survey$REHEARSALPre <- as.numeric(survey$REHEARSALPre)
survey$REHEARSALDuring <- as.numeric(survey$REHEARSALDuring)
```

```
## Warning: NAs introduced by coercion
```

```
survey <- survey %>%
  mutate(diffPrivLessons=PRIVLESSONSDuring-PRIVLESSONSPre,
         diffCoursework=COURSEWORKDuring-COURSEWORKPre,
         diffWarmup=WARMUPDuring-WARMUPPre,
         diffFormalTraining=FORMALTRAININGDuring-PERFORMANCEPre,
         diffPerformance=PERFORMANCEDuring-PERFORMANCEPre,
         diffRehearsal=REHEARSALDuring-REHEARSALPre)
```

```
both <- survey %>% filter(`Please select the most relevant choice.`=="I am a musician and a bilingual/musical")
musician <- survey %>% filter(`Please select the most relevant choice.`=="I am a professional musician,")
language <- survey %>% filter(`Please select the most relevant choice.`=="I am a bilingual who uses 2 languages")
```

```
both %>%
  count(`Please select the option that best applies to you.`)
```

```
## # A tibble: 2 x 2
##   `Please select the option that best applies to you.`      n
##   <chr>                                                <int>
## 1 Instrumentalist                                         17
## 2 Student OR Currently receiving formal musical training 10
```

```
both %>%
  select(`Please state your music experience in the levels of music training given below. - High school or below`,
        `Please state your music experience in the levels of music training given below. - Some college`,
        `Please state your music experience in the levels of music training given below. - Associate's degree`,
        `Please state your music experience in the levels of music training given below. - Bachelor's degree`,
        `Please state your music experience in the levels of music training given below. - Master's degree`,
        `Please state your music experience in the levels of music training given below. - PhD or professional degree`,
        `If applicable, what other types of musical training did you receive?`)
```

```
## # A tibble: 27 x 7
##   `Please state your music experience in the levels of music training given below. - High school or below`
##   <chr>
## 1 X
## 2 <NA>
## 3 A lot!! I participated in music lessons
## 4 Private piano lessons
## 5 band/private lessons
## 6 <NA>
## 7 <NA>
## 8 Orchestra
## 9 4 years, symphony orchestra
## 10 orchestral, lessons
## 11 ... with 17 more rows, and 3 more variables: `Please state your music experience in the levels of music training given below. - Master's degree or above`,
## 12 `Please state your music experience in the levels of music training given below. - PhD or professional degree`,
## 13 `Please state your music experience in the levels of music training given below. - Music experience` <chr>,
## 14 `If applicable, what other types of musical training did you receive?` <chr>
```

```
both %>%
  select(`What are the most enjoyable aspects of your musical life?`,
        `What are some of your most vivid music-related memories?`,
        `Do you have memories that also include specific musical moments (performing, listening, etc.)`,
        `Can a piece of music take you to a different place and time?`)
```

```
`Please share some examples of music making taking you to a different place and time.`)
```

```
## # A tibble: 27 x 5
##   `What are the m~` `What are some ~` `Do you have me~` `Can a piece of~`
##   <chr>           <chr>           <chr>           <chr>
## 1 "Composition, a~ Publishing my f~ "See above"      <NA>
## 2 "Making music w~ Teaching my nie~ "one time I san~ <NA>
## 3 "Being able to ~ I was in the st~ "To be honest, ~ <NA>
## 4 "Writing and pe~ Watching Coldpl~ "Performing wit~ <NA>
## 5 "I enjoy the ac~ playing with th~ "playing solo, ~ <NA>
## 6 "Performing, re~ Performing      "Yes, hearing a~ <NA>
## 7 "Honing an arti~ I founded and c~ "Interestingly,~ <NA>
## 8 "Immersion"     Bowing violin i~ "Most of my aud~ <NA>
## 9 "Being able to ~ Playing in an o~ "My last memori~ <NA>
## 10 "Being able to ~ Besides the peo~ "Yes"           <NA>
## # ... with 17 more rows, and 1 more variable: `Please share some examples of
## # music making taking you to a different place and time.` <chr>
```

```
both %>%
  select(`With whom do you play music?`,
    `Are there any musicians in your family or amongst your friends?`,
    `How has your family's/friend's musicianship impacted you?`)
```

```
## # A tibble: 27 x 3
##   `With whom do you play mu~` `Are there any musician~` `How has your family's/f~`
##   <chr>           <chr>           <chr>
## 1 Usually myself, playing f~ No                <NA>
## 2 others fellow students, p~ Yes              musical knowledge; intro~
## 3 My choir, my best friends~ Yes              No one else in my family~
## 4 My partner, my best frien~ Yes              Music is a big part of m~
## 5 currently just myself, an~ Yes              yes
## 6 Myself, chamber musicians Yes              I grew up in a musical f~
## 7 On the piano either by my~ Yes              I used to be almost excl~
## 8 Acapella group, friends   Yes              Definitely increased my ~
## 9 My sisters, boyfriend and~ Yes              Feel more connected to o~
## 10 Either myself or the frie~ Yes              Greatly - speaking with ~
## # ... with 17 more rows
```

```
both %>%
  count(`How has COVID-19 affected your ability to be a musician?`)
```

```
## # A tibble: 3 x 2
##   `How has COVID-19 affected your ability to be a musician?`   n
##   <chr>                                                         <int>
## 1 Negative                                                         15
## 2 Neutral                                                            7
## 3 Positive                                                            5
```

```
both %>%
  count(`How has COVID-19 affected your ability to be a musician?`,
    `In what way has COVID-19 affected your income from music?`,
    `In what way has COVID-19 affected available rehearsal/practice space for you?`,
    `In what way has COVID-19 affected your motivation to play?`)
```

```
## # A tibble: 19 x 5
##   `How has COVID-1~` `In what way has~` `In what way has ~` `In what way ha~`   n
```

##	<chr>	<chr>	<chr>	<chr>	<int>
## 1	Negative	Negative	Negative	Neutral	1
## 2	Negative	Negative	Neutral	Negative	1
## 3	Negative	Neutral	Negative	Negative	1
## 4	Negative	Neutral	Negative	Positive	1
## 5	Negative	<NA>	Negative	Negative	4
## 6	Negative	<NA>	Negative	Neutral	1
## 7	Negative	<NA>	Negative	Positive	4
## 8	Negative	<NA>	<NA>	Negative	1
## 9	Negative	<NA>	<NA>	Positive	1
## 10	Neutral	Neutral	Neutral	Positive	1
## 11	Neutral	<NA>	Negative	Neutral	2
## 12	Neutral	<NA>	Neutral	Positive	1
## 13	Neutral	<NA>	Positive	Neutral	1
## 14	Neutral	<NA>	Positive	<NA>	1
## 15	Neutral	<NA>	<NA>	Positive	1
## 16	Positive	Neutral	Positive	Positive	1
## 17	Positive	<NA>	Neutral	Positive	1
## 18	Positive	<NA>	Positive	Positive	2
## 19	Positive	<NA>	<NA>	Positive	1

both %>%

```
select(`How has COVID-19 affected your ability to be a musician?`,
  diffPrivLessons,
  diffCoursework,
  diffWarmup,
  diffFormalTraining,
  diffPerformance,
  diffRehearsal,
  `In what way has COVID-19 affected your income from music?`,
  `In what way has COVID-19 affected available rehearsal/practice space for you?`,
  `In what way has COVID-19 affected your motivation to play?`,
  `Please share any additional information on how COVID-19 has affected your ability to be a musician?`)
```

A tibble: 27 x 11

##	`How has COVID-19 affected your ability to be a musician?`	diffPrivLessons	diffCoursework	diffWarmup	diffFormalTraining
##	<chr>	<dbl>	<dbl>	<dbl>	<dbl>
## 1	Positive	-1	NA	-2.5	NA
## 2	Negative	0	NA	NA	NA
## 3	Negative	0	0	-1	-1
## 4	Negative	0	0	0	-0.5
## 5	Neutral	0	0	0	0
## 6	Neutral	0	0	0	0
## 7	Negative	0	NA	0	4
## 8	Negative	0	0	-1	-1
## 9	Negative	1	0	-2	0
## 10	Neutral	0	0	0	0.5

... with 17 more rows, and 6 more variables: diffPerformance <dbl>, diffRehearsal <dbl>, `In what way has COVID-19 affected your income from music?` <chr>, `In what way has COVID-19 affected available rehearsal/practice space for you?` <chr>, `In what way has COVID-19 affected your motivation to play?` <chr>, `Please share any additional information on how COVID-19 has affected your ability to be a musician?` <chr>

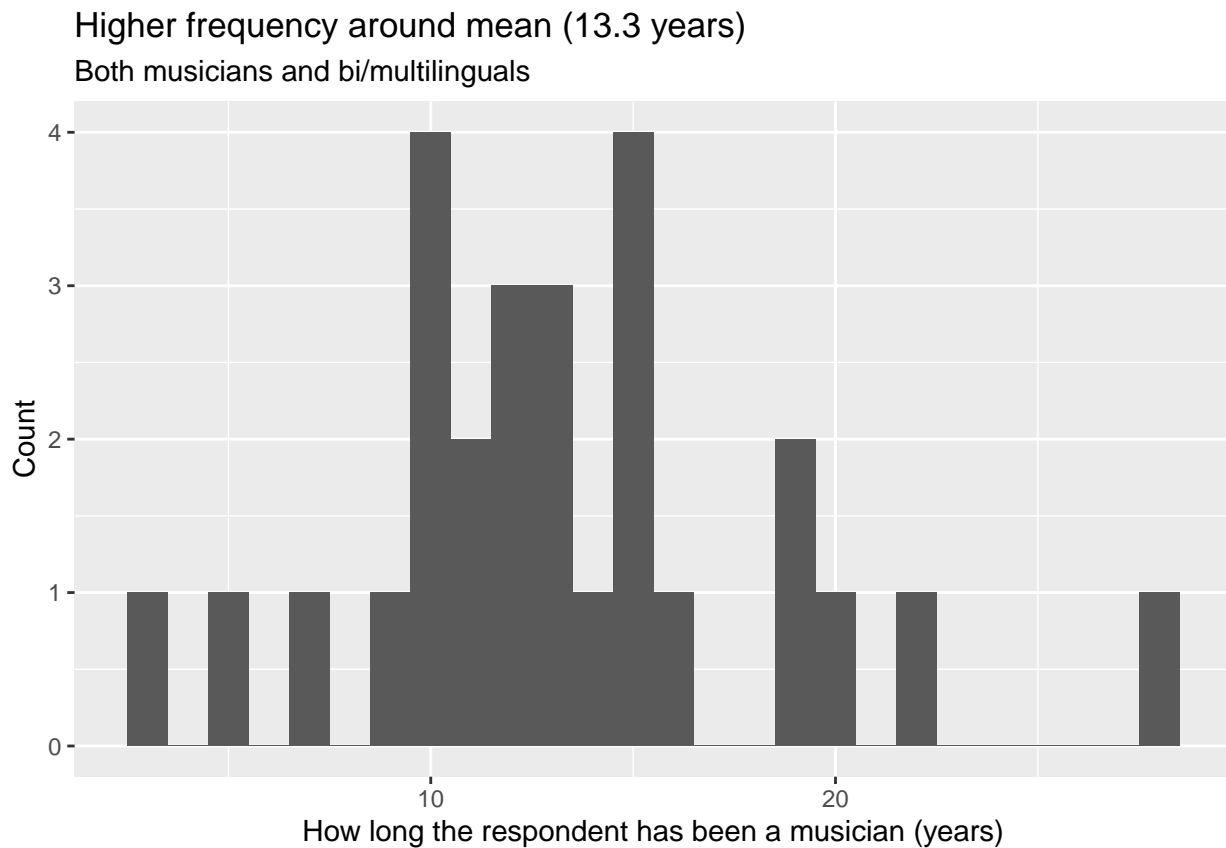
```
both %>%
  count(`In what way has COVID-19 affected your accessibility to persons in your bi- and multilingual c
```

```
## # A tibble: 4 x 2
##   `In what way has COVID-19 affected your accessibility to persons in you~      n
##   <chr>                                     <int>
## 1 Negative                                   8
## 2 Neutral                                    8
## 3 Positive                                   6
## 4 <NA>                                       5
```

```
both %>%
  summarise(meanYearsPlayed = mean(HowLongPlayingFormatted, na.rm=TRUE),
            meanAge = mean(Age, na.rm=TRUE))
```

```
## # A tibble: 1 x 2
##   meanYearsPlayed meanAge
##   <dbl>          <dbl>
## 1      13.3        21.9
```

```
ggplot(data=both, mapping = aes(x=HowLongPlayingFormatted)) +
  geom_histogram(binwidth=1) +
  labs(x="How long the respondent has been a musician (years)",
       y="Count",
       title="Higher frequency around mean (13.3 years)",
       subtitle="Both musicians and bi/multilinguals")
```



```
both %>% select(HIGHSCHOOLLANGSTUDIED, SOMECOLLEGELANGSTUDIED, ASSOCIATESLANGSTUDIED, BACHELORSLANGSTUDIED)
```

```
## # A tibble: 27 x 6
##   HIGHSCHOOLLANGS~ SOMECOLLEGELANG~ ASSOCIATESLANGS~ BACHELORSLANGST~
##   <chr>           <chr>           <chr>           <chr>
## 1 Arabic          <NA>           <NA>           <NA>
## 2 English         <NA>           <NA>           French
## 3 Spanish         <NA>           <NA>           Spanish
## 4 Spanish         <NA>           <NA>           Spanish
## 5 none           <NA>           <NA>           <NA>
## 6 French          <NA>           <NA>           Chinese
## 7 Italian, Spanish <NA>           <NA>           <NA>
## 8 1               1             <NA>           <NA>
## 9 Spanish         <NA>           <NA>           Spanish
## 10 Latin          <NA>           <NA>           Mandarin
## # ... with 17 more rows, and 2 more variables: MASTERSLANGSTUDIED <chr>,
## #   PHDLANGSTUDIED <chr>
```

```
both %>%
  count(`In what way has COVID-19 affected your accessibility to persons in your bi- and multilingual c
```

```
## # A tibble: 4 x 2
##   `In what way has COVID-19 affected your accessibility to persons in you~      n
##   <chr>                                                    <int>
## 1 Negative                                                    8
## 2 Neutral                                                    8
## 3 Positive                                                    6
## 4 <NA>                                                        5
```

```
both %>%
  select(`In what way has COVID-19 affected your accessibility to persons in your bi- and multilingual c
    `In what way has COVID-19 affected travel for you?`,
    `In what ways has COVID-19 impacted your interactions with others in general?`,
    `In what ways has COVID-19 impacted your income?`,
    `In what ways has COVID-19 impacted your course delivery of language courses?`)
```

```
## # A tibble: 27 x 5
##   `In what way ha~ `In what way ha~ `In what ways h~ `In what ways h~
##   <chr>           <chr>           <chr>           <chr>
## 1 Positive        Negative        Negative        Negative
## 2 Neutral         Negative        Positive        Negative
## 3 Positive        Negative        Negative        <NA>
## 4 Negative        Negative        Neutral         <NA>
## 5 Negative        Negative        Neutral         Neutral
## 6 <NA>            Positive        <NA>           <NA>
## 7 Negative        Negative        Negative        <NA>
## 8 Negative        Negative        Negative        <NA>
## 9 Positive        Negative        Negative        Neutral
## 10 Neutral        Negative        Neutral         <NA>
## # ... with 17 more rows, and 1 more variable: `In what ways has COVID-19
## #   impacted your course delivery of language courses?` <chr>
```