Systematic literature review

A papers' analysis

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Table of contents

1 Libraries and loading data

```
library(cowplot)
library(tidyverse)
library(ggstatsplot)

#read.csv transforms ":" in "." so it was complicated to replicate code
#every column name is now lowered, the dots are replaced with _
#every underscore at the start or end of the column name is deleted

nlp_papers <- read.csv("nlp_papers_utf8.csv", fileEncoding = "UTF-8")
new_colnames <- gsub("\\.", "_", colnames(nlp_papers)) %>%
  trimws(., whitespace = "_") %>%
  gsub("_+", "_", .) %>%
  tolower()
```

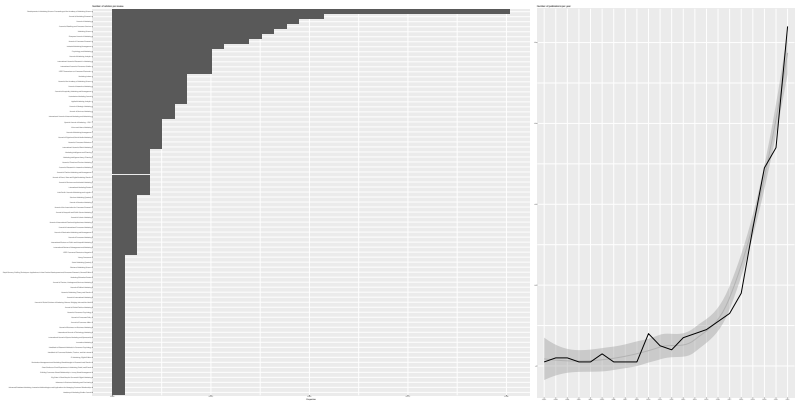
```r
colnames(nlp_papers) <- new_colnames
```

2 A look at the number of marketing publications with NLP

The number of papers in marketing reviews using NLP methods has increased a lot in recent years:

```r
nlp_papers <- nlp_papers %>%
  mutate(year = substr(prism_coverdate,1,4))


#get rid of conference papers
nlp_papers_journal_only <- nlp_papers %>%
  filter(!grepl("conference", subtypedescription, ignore.case = TRUE)) %>%
  filter(year < 2023)



t0 <-as.data.frame(prop.table(table(nlp_papers_journal_only$prism_publicationname)))
g01<-ggplot(t0,aes(x=reorder(Var1, Freq), y=Freq))+geom_bar(stat="identity")+
  coord_flip()+
  labs( title="Number of articles per review", y="Proportion", x= NULL)

t1<-as.data.frame(table(nlp_papers_journal_only$year))

g02<-ggplot(t1, aes(x=Var1, y=Freq, group=1))+
  geom_smooth(color="Grey70", linewidth=2)+
  geom_line(stat="identity", size=1.1) +
  labs( title="Number of publications per year", y="", x=NULL)
plotgrid <- plot_grid(g01,
                      g02,
                      label_size = 10,
                      ncol=2,
                      rel_widths =  c(2,1))
ggsave(filename="images/evolution_publications_nlp_marketing.png",
```

```
        width = 80,
        height = 40,
        units = "cm")
plotgrid
```



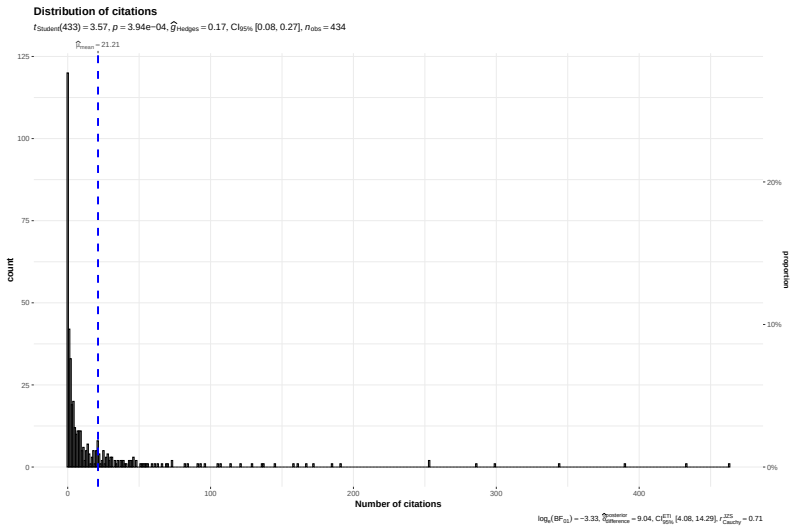
3 A look at the number of citations

It seems that research endeavors within the nascent domain of marketing using NLP methodologies exhibit a resemblance to research conducted on a global scale regarding the number of citations. Indeed, it showcases a pronounced inequity, where numerous papers find themselves receiving minimal or no citations whatsoever.

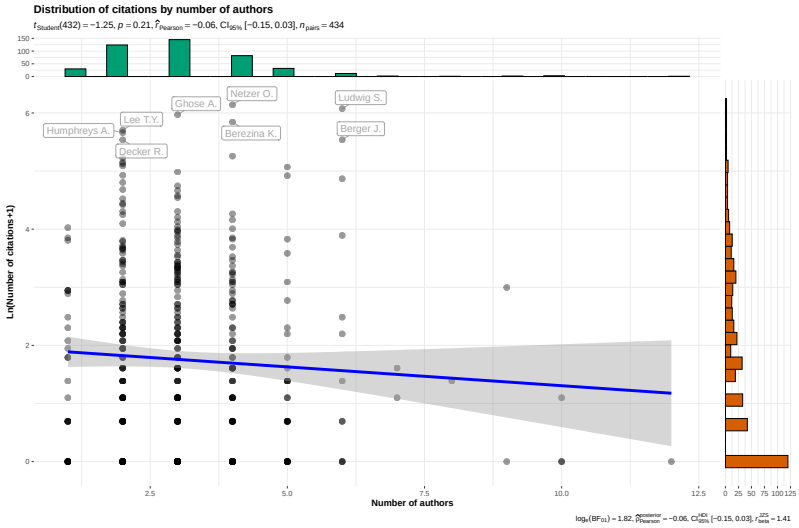
The subsequent graphs are done with the ggstatsplot R package (Patil 2021).

```
#layout-ncol: 2

set.seed(42)

gghistostats(
  data       = nlp_papers,
  x          = citedby_count,
  title      = "Distribution of citations",
  test.value = 12,
```

```
  binwidth   = 1,
  xlab = "Number of citations"
)
```




```
nlp_papers$log_citedby = log(nlp_papers$citedby_count+1)
ggscatterstats(
  data  = nlp_papers,
  x     = author_count,
  y     = log_citedby,
  xlab  = "Number of authors",
  ylab  = "Ln(Number of citations+1)",
  title = "Distribution of citations by number of authors",
  label.var = dc_creator,
  label.expression = citedby_count > 200,
  point.label.args = list(alpha = 0.7, size = 4, color = "grey50"),
  xfill = "#CC79A7", ## fill for marginals on the x-axis
  yfill = "#009E73", ## fill for marginals on the y-axis
)
```




```
ggsave("images/distribution_citations_authors.svg", width=15, height = 12)
```

Patil, Indrajeet. 2021. "Visualizations with statistical details: The 'ggstatsplot' approach." *Journal of Open Source Software* 6 (61): 3167. https://doi.org/10.21105/joss.03167.