

E-News Express

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Objective

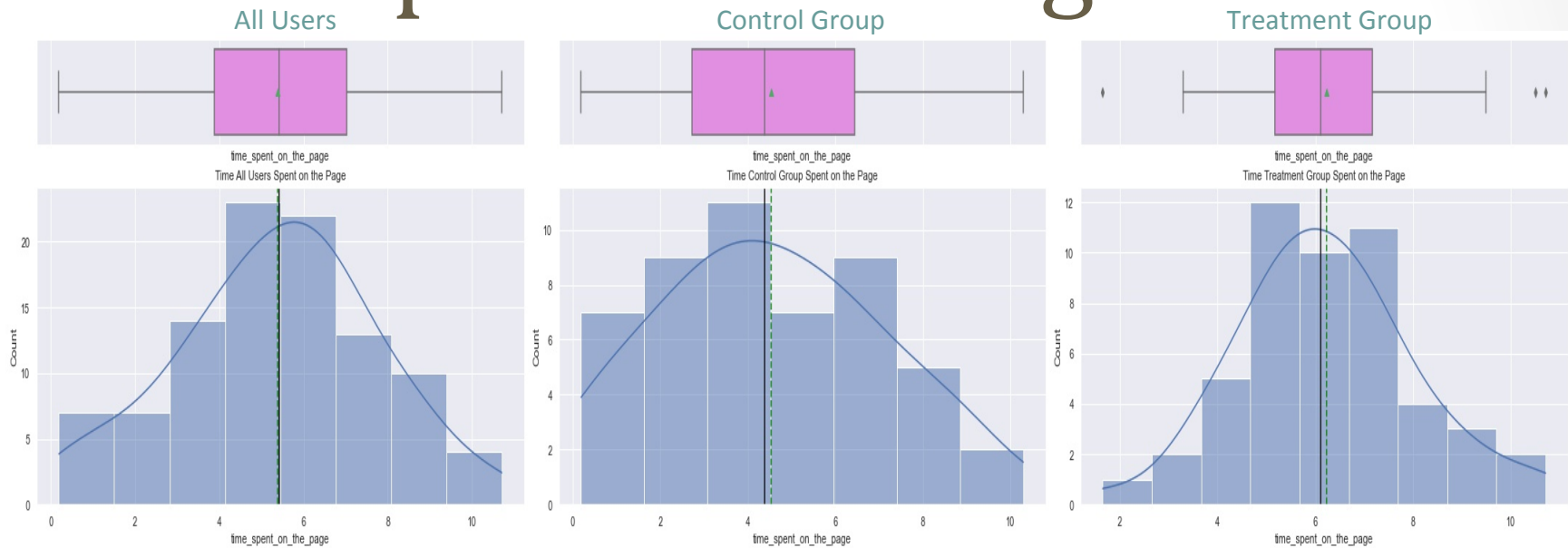
- To extract actionable insights from the data and analyze users' responses to two variants of the landing page to determine effectiveness of attracting new subscribers
- We will focus on certain aspects on the new landing page:
 - Is more time spent on page?
 - Does it have a greater conversion rate?
 - Is mean time spent same for different language users?
- We will also determine if converted status depends on the preferred language

Data Information

- The data contains:
 - info about the user
 - the group/page they were assigned
 - converted status
- 100 observations
- 5 categorical variables
- 1 numerical variable
- 0 missing values

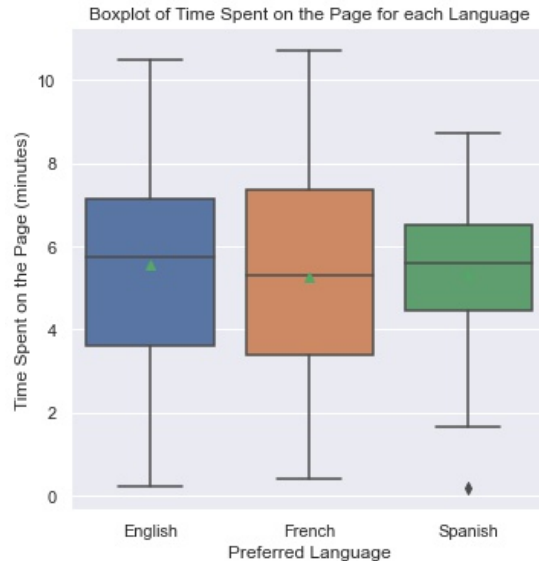
Variable	Description
user_id	User ID of the person visiting the website
group	Whether user belongs to control or treatment
landing_page	Whether user viewed old or new landing page
time_spent_on_the_page	Time (minutes) spent by user on landing page
converted	whether user became converted to a subscriber of the news portal
language_preferred	Language chosen by user to view landing page

Exploratory Data Analysis: Time Spent on the Page



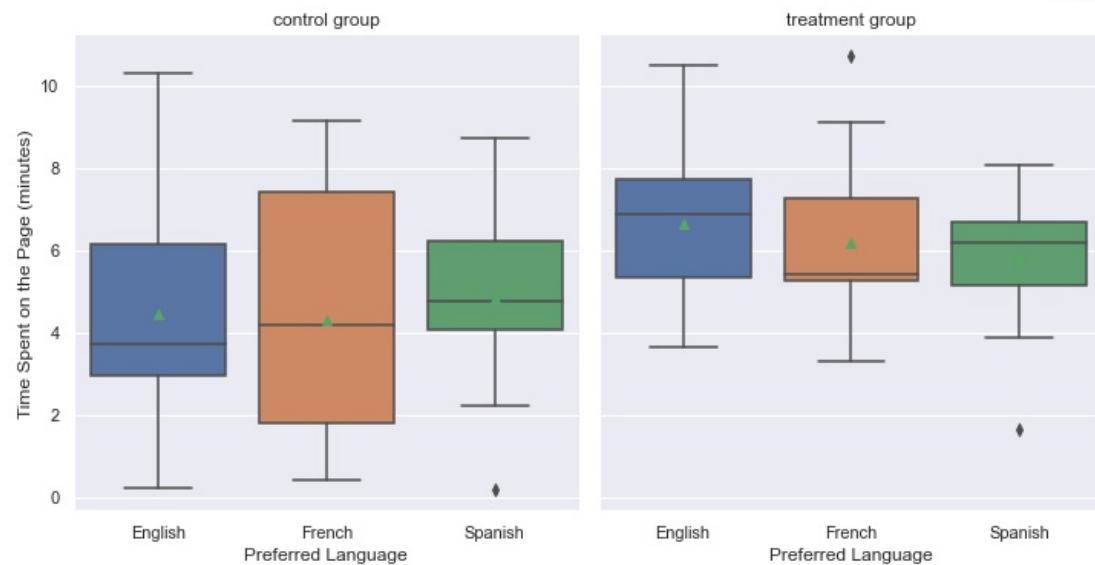
- Overall, time variable appears approximately normal
- Control group has lower values than treatment group including min, median, max, and mean
- Means for both control and treatment groups above their respective medians
- Treatment group has a few outliers to the left and the right

Exploratory Data Analysis: Time Spent on Page vs Language

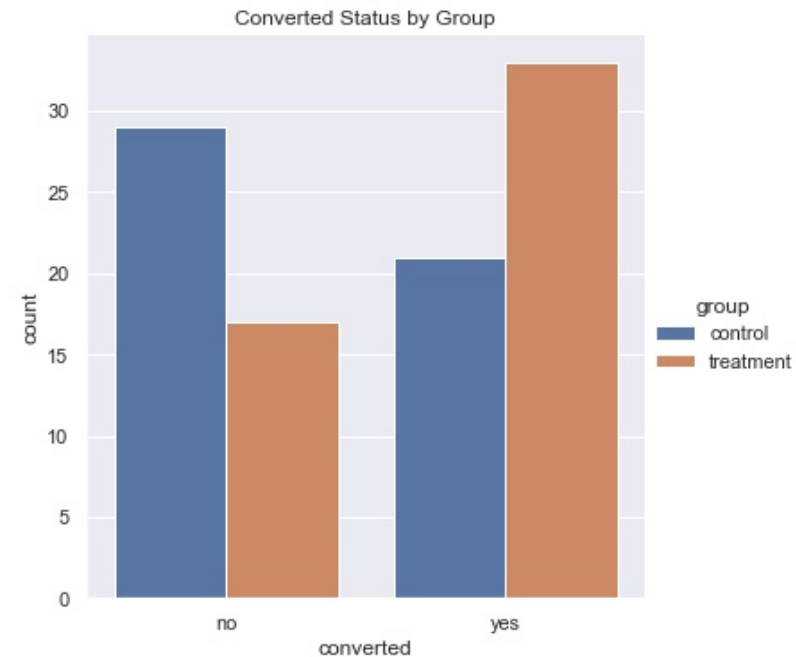
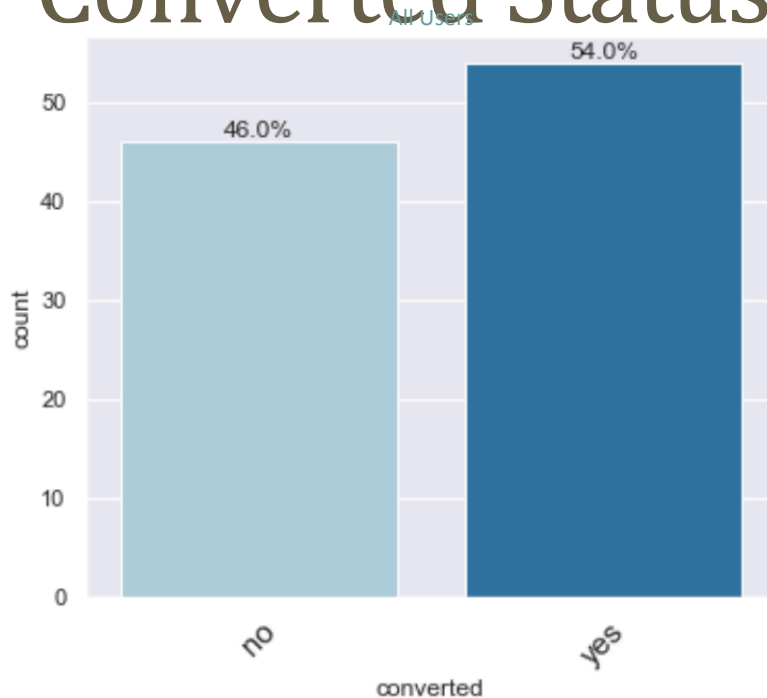


- Time spent on the page does not seem to differ overall, between English language & French language users
- Range appears different for Spanish language users, but mean & median time seem similar

- Smaller ranges in time for language preferences in treatment group
- Fewer users spending under 4 minutes in treatment group

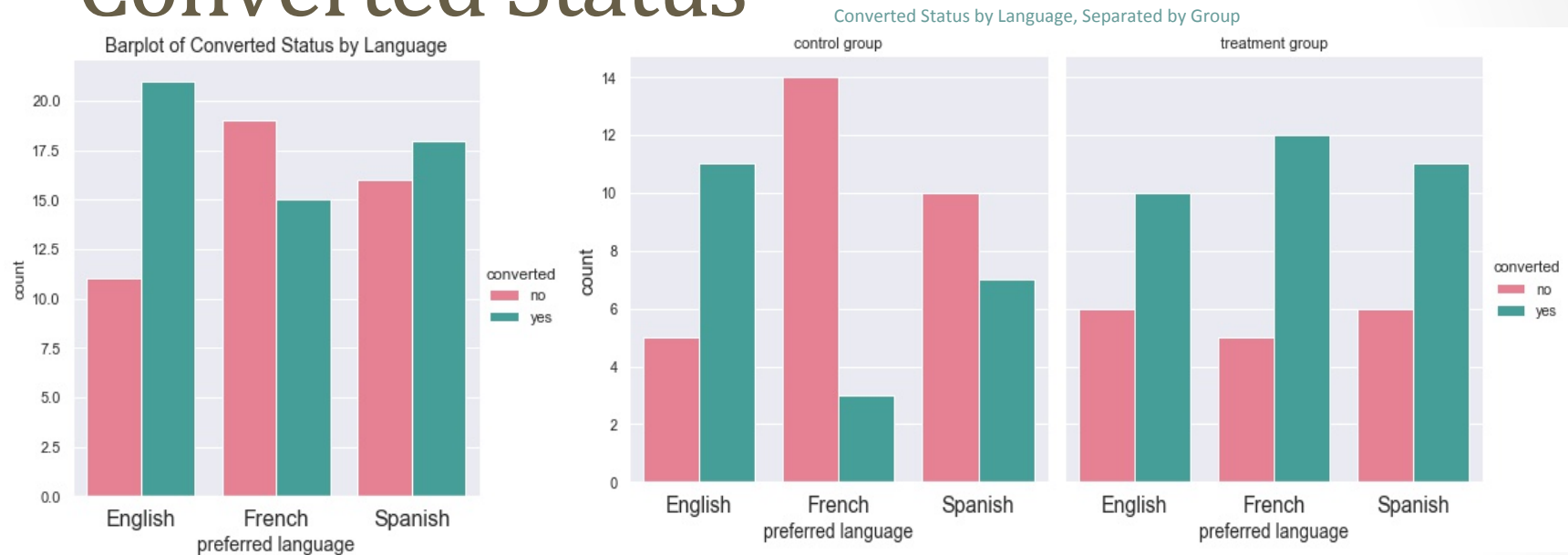


Exploratory Data Analysis: Converted Status



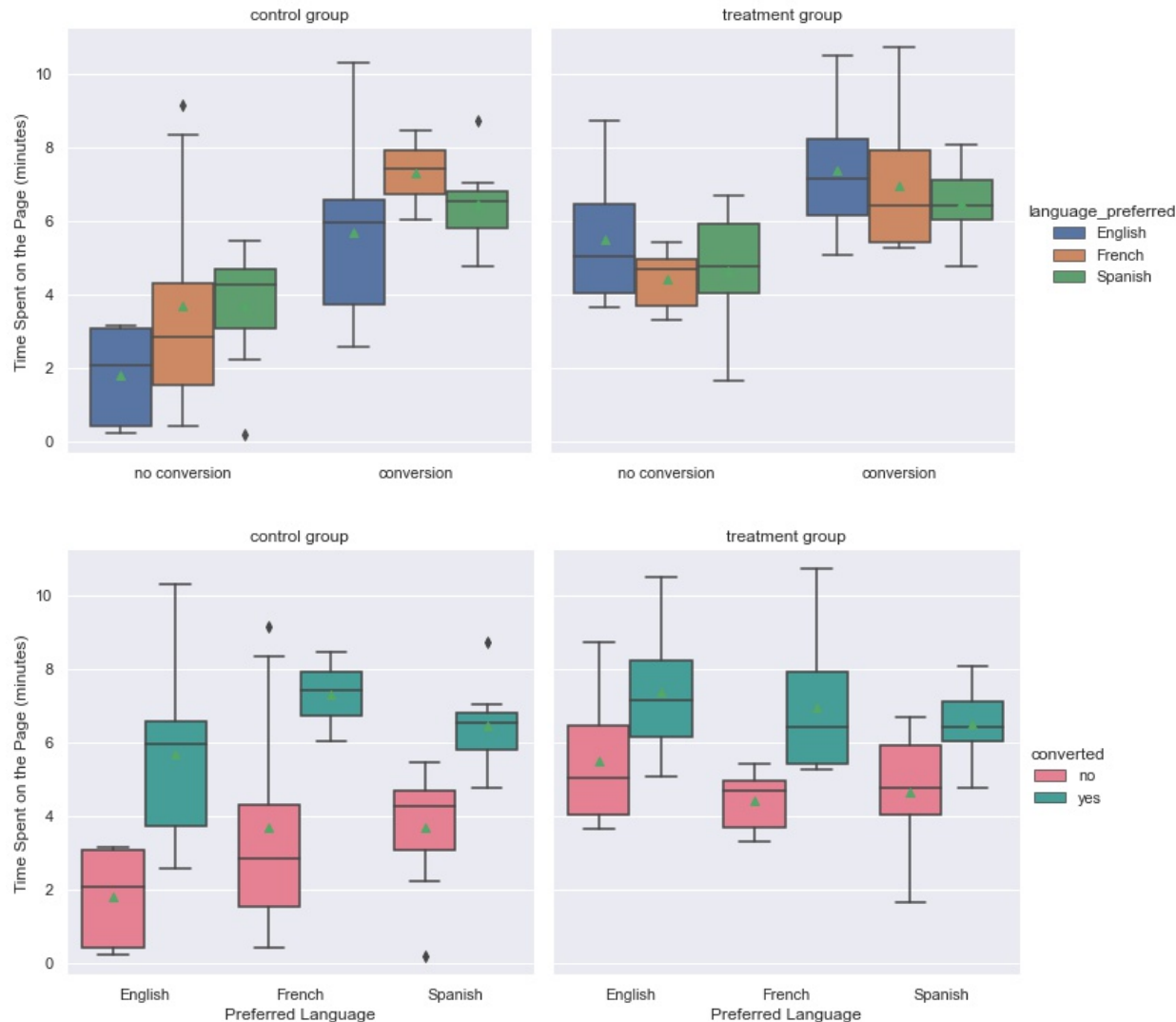
- Overall, more users were converted to become subscribers than not
- The conversions come predominantly from treatment group, i.e., the new landing page seems more likely to result in a conversion

Exploratory Data Analysis: Converted Status



- Overall, English language users had the highest conversion rate, followed by Spanish language users. French language users had the lowest conversion rate
- On old landing page, those with English preference appear more likely to be converted
- English language users appear to marginally prefer old landing page over new
- Spanish language users had more conversions from the new page
- French language users had the highest conversion rate from the new page and lowest conversion rate from the old page.

Exploratory Data Analysis: Time/Language/Converted/Group

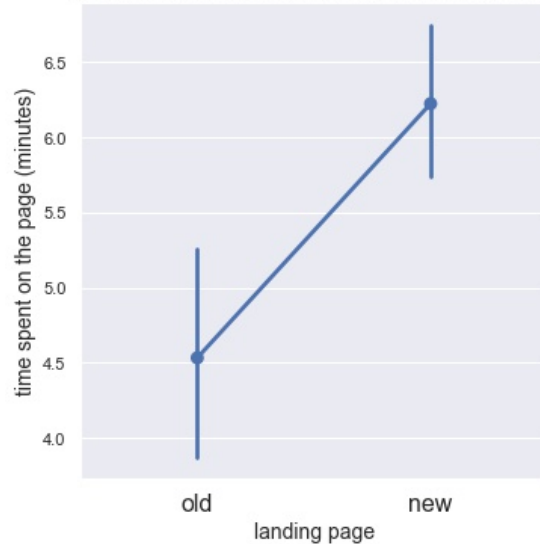


- Spanish lang. users spent most time on old page without conversion
- French lang. users spent most time on old page for conversion
- English lang. users spent most time on new page for conversion **and** without conversion
- It appears there is a time threshold that a user must cross on each landing page to become converted to be a subscriber

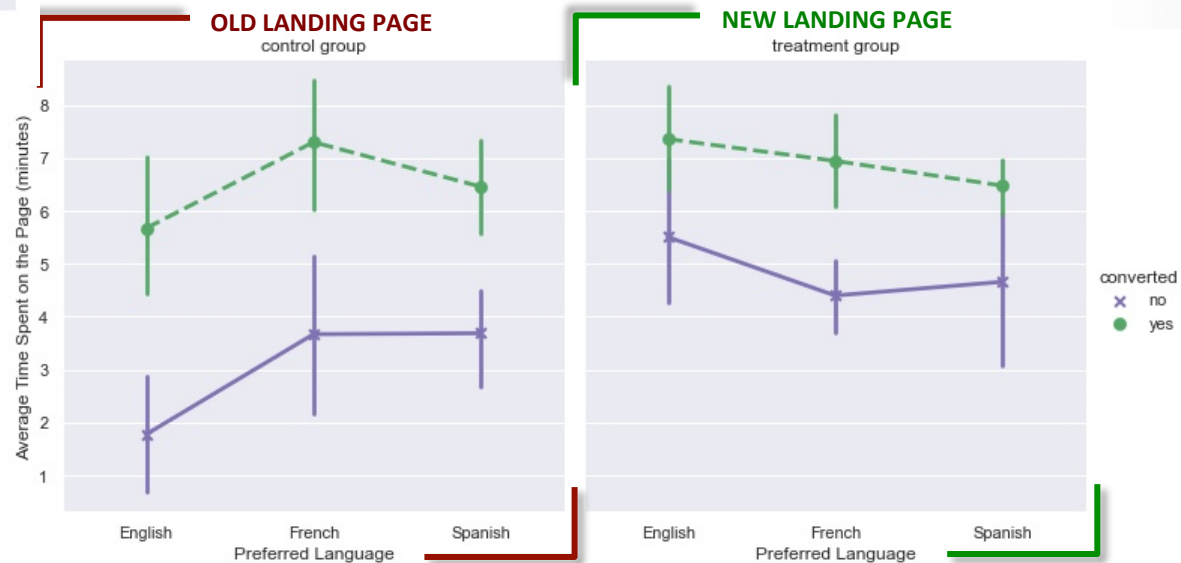
Business Insights:

New Landing Page and Time

Time spent on the page for old vs new landing pages



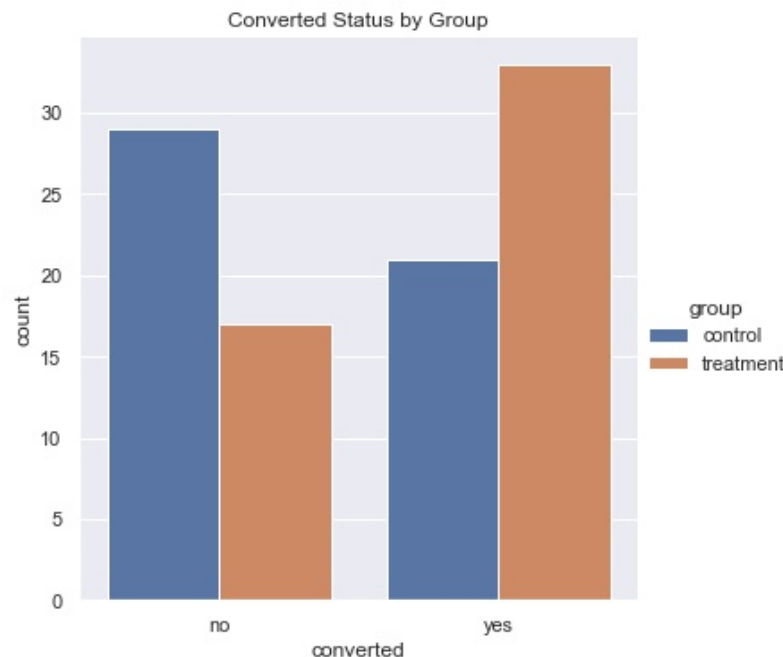
- We can see visually that the treatment group has higher average time spent on the page
- Independent two-sample t -test for equality of means with unequal standard deviations
- $p < \alpha$
- We have enough evidence to support the claim that **users spend more time on the new landing page.**



Business Insights:

New Landing Page and Conversion

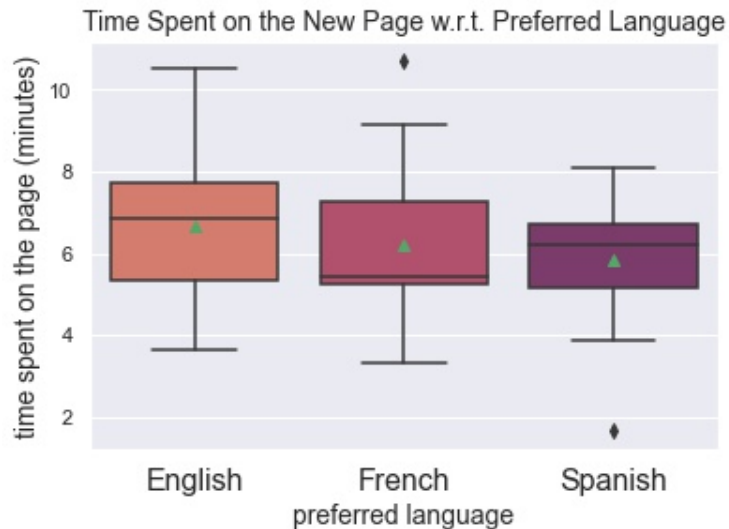
	not converted	converted
control (old page)	58%	42%
treatment (new page)	34%	66%



- We can see visually that the treatment group has higher conversion count
- Two proportion z-test
- $p < \alpha$
- We have enough evidence to support the claim that **the conversion rate for the new landing page is greater than that of the old page**

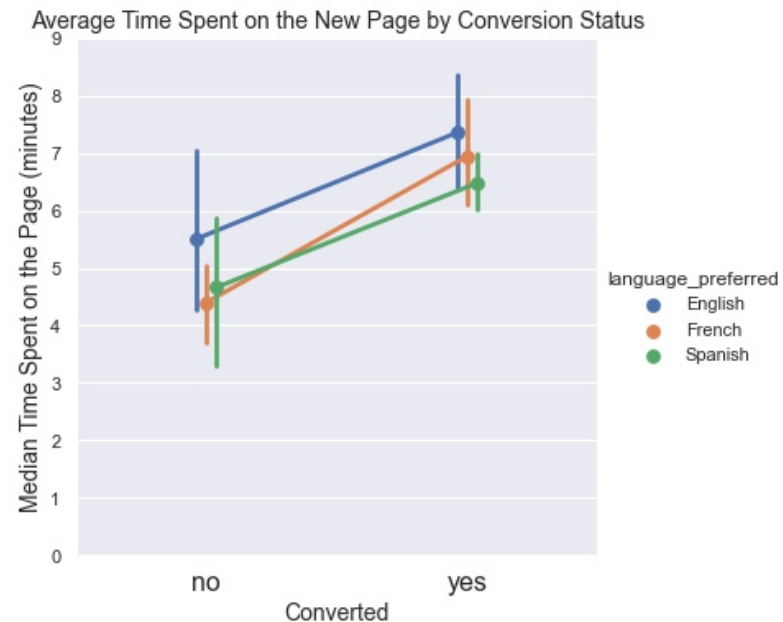
Business Insights:

New Page & Mean Time Per Language

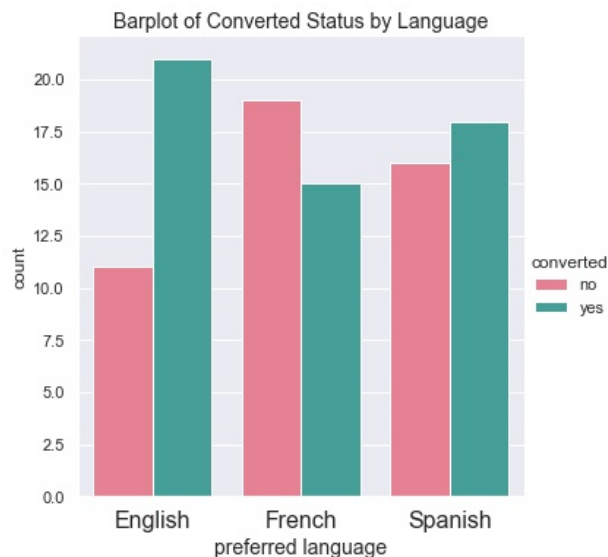


- We do not have enough evidence to support the claim that at least one language preference is different from the others for mean time spent on the new page
- We conclude that the **mean time spent on the new page is the same across language preferences**

- We can see visually that the mean time is about the same across languages
- One-way ANOVA to compare three population means
- $p > \alpha$

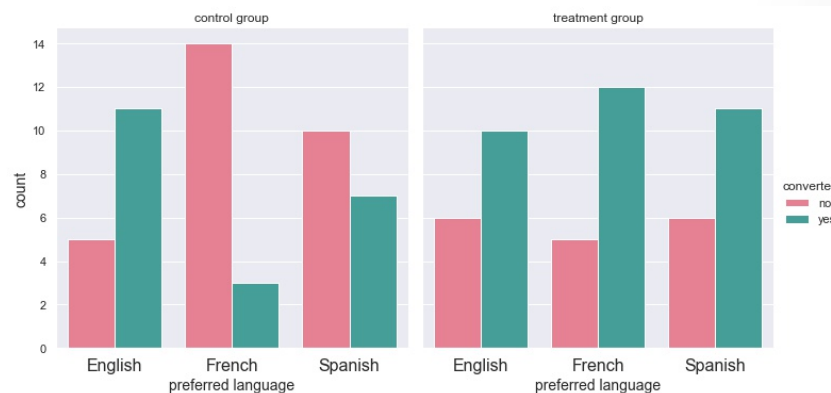


Business Insights: Converted Status & Language



	English	French	Spanish
not converted	34%	56%	47%
converted	66%	44%	53%

- We can see preferred language is not a clear indicator of converted status
- Chi-square test of independence, to determine if two categorical variables are independent of each other
- $p > \alpha$
- We do not have enough evidence to support the claim that converted status depends on the preferred language
- We conclude that **conversion status and language preference are independent variables.**



Business Insights Summary

- **Switch to the new landing page for greater conversions**
 - The new landing page is more effective at gathering new subscribers.
 - Users spend more time on the new landing page
 - Not as large misalignment between languages on new page, i.e., average time spent on the new page is the same across language preferences
- Conversion status is independent of language preference

Recommendations:

More Data + More Testing

- Increase power of the tests and decrease the probability of a Type II error (false negative) for each statistical test
- There is not enough data to determine if converted status and preferred language are independent or dependent of each other solely on the new landing page
- There is not enough data to determine if more people are converting faster on the new page
- Collect data around significant current event dates as well as unexceptional dates
- Collect details of user behavior on the landing page
- Determine if time spent for conversions has decreased overall and by language
- Look into how to speed up conversion time with A/B tests:
 - Add pop-up
 - CTA (call-to-action) buttons, e.g., bolder color, larger size, anchored
 - Use fewer form fields for subscription form
 - Third-party signup service
 - Make articles easily shareable