

GlowBox Analysis

Mobile Banner A/B Test

by Wandering Tern

Summary

- A/B test on effectiveness of mobile banner
- 48,943 participants randomly assigned to test and control group
- Statistical comparisons of average sales and sale conversions between test and control groups
- 13 days of data collected to study

GlowBox A/B Test

Goals

- *To see if the new mobile banner increases attention for new product line and increases overall sales and profit.*
- *To assess whether it is prudent to launch the banner or not*

Process

- Organize and clean data
- Power analysis to find appropriate sample size
- Set hypotheses to test means of average amount spent per user
- Set confidence levels to test proportions of the conversion rates

Measures for Data Set			
	Full Population	Test Group A	Test Group B
Sample Size	48943	24343	24600
Mean Sales	3.3827	3.3745	3.3910
Conversions	2095	955	1139
Conversion ratio	0.04280	0.03923	0.04630
Standard Deviation	25.6749	25.9364	25.4146

@

Central Metrics

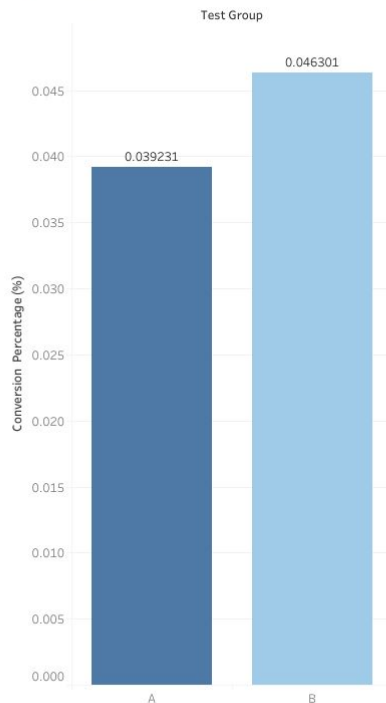
Conversion rate:

- Up 7/10ths% over data period
- Statistically we reject the Null-Hypothesis and that each group's conversion rate is unique

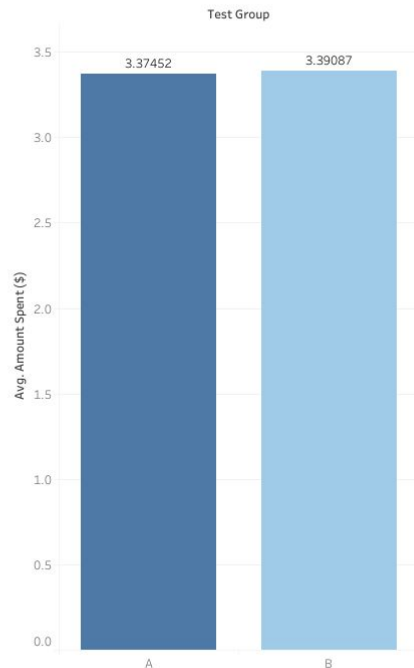
Mean amount spent per customer:

- Up \$0.01635 over data period
- Statistically to 95% confidence, there is no difference in the means between the two groups. Average Sales per user is the same.

GloBox - Sales conversion rate



Average Amount Spent per Customer

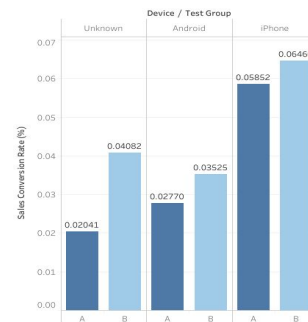


Other considerations:

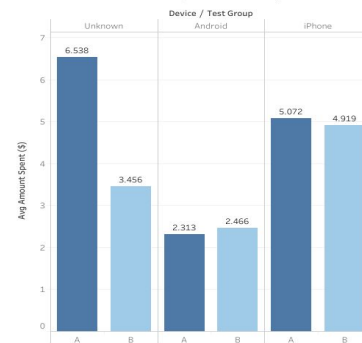
- We have looked at Gender, Type of Mobile Device, Country of Residence, Market Share by Country, Novelty Effect, and Distribution of Sales.
- Although it looks like there is an uptick in all of these areas with the Banner, there seems not to be any real change stemming from these variables.

Glowbox A/B Test

GloBox - Device vs. Conversion Rate



Device vs. Avg Amount Spent

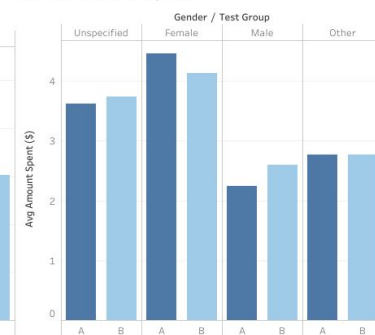


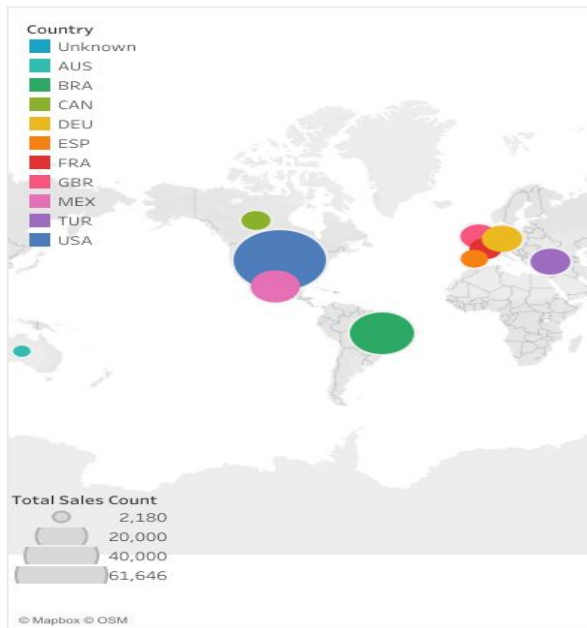
GloBox

Gender vs. Conversion Rate

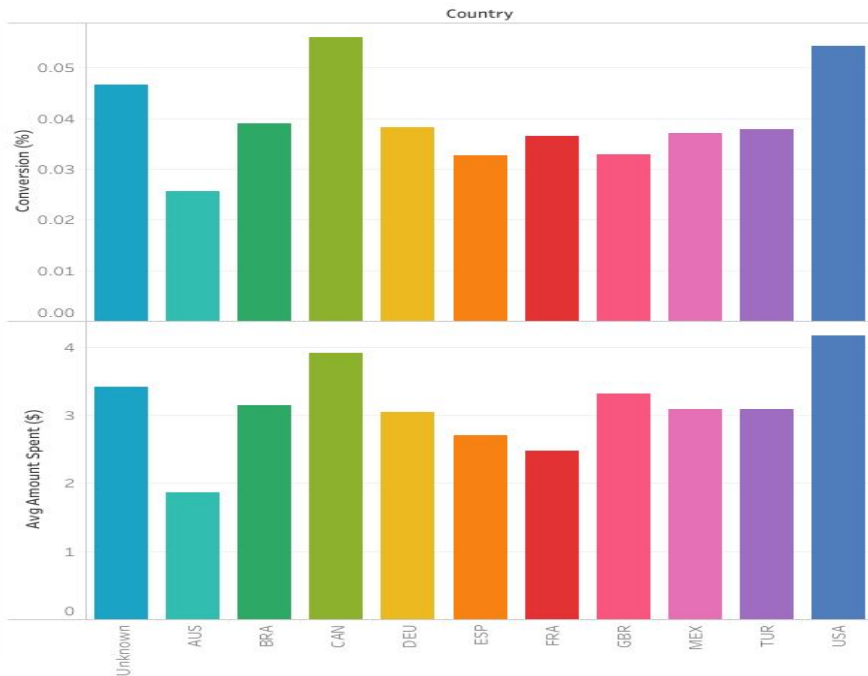


Gender vs Amt. Spent



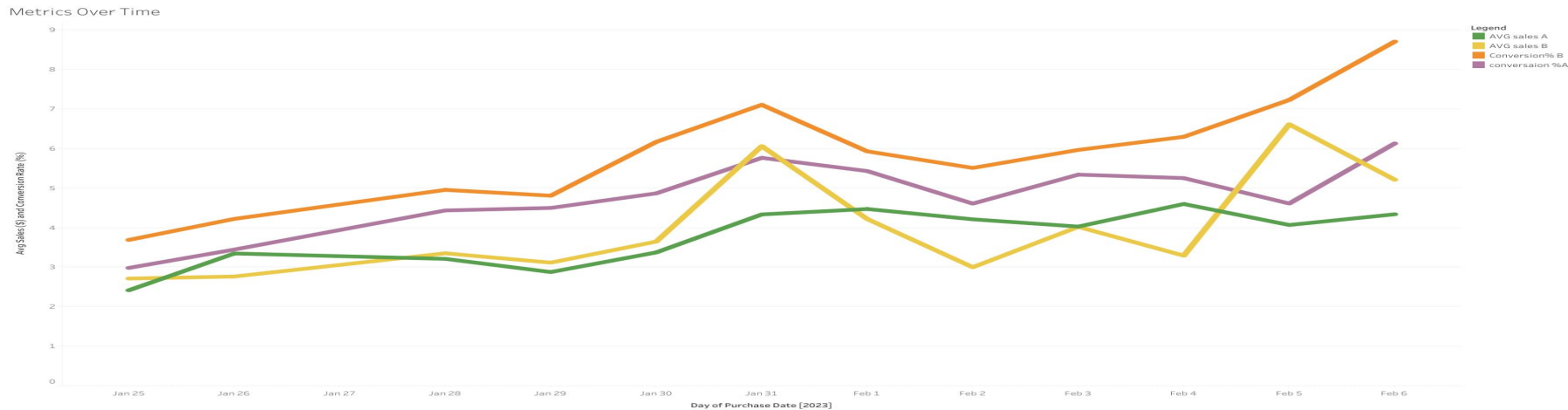


Country vs. Conversion & Amt. Spent



- Relatively normalized distribution across countries
- Disproportionate market size across countries, skews the impact on total sales. 1% growth in USA has a huge impact compared to 1% in Australia.

Sales Over Time



Novelty Effect - none seen, although the short duration of experiment limits looking at patterns.

Power analysis - Calculated sample sizes to ensure the level of confidence we want.

Means 786 users needed

Proportions 164.9k users needed

Our sample 48.9k users in experiment

Our sample is adequate

Our sample is not adequate

Conclution

We do not recommend launching the mobile banner at this time.

- Increases in Metrics were not achieved
- Sample was inadequately sized for confident analysis

Iterations

- Reiterate the banner
- Do another analysis with one or two revised banners, or other new webpage design or attribute
- Lengthen the duration of data collection
- Increase the sample size, or collect enough data to ensure a high level of confidence for any statistical testing.