

A.B TESTING IN GLO BOX

Final Project:

Impact Assessment of Advertising Banner on User Purchasing Behavior – An A/B Testing Study

Fatemeh Radboy

Data Analytics June 2032, Masterschool DA106 -Final Project, Conduct A/B Testing in Glo Box

Mr.Arek Tarnawski July 7, 2023

A.B TESTING IN GLO BOX

Summary

This document outlines the results and observations from an A/B test carried out by Globox, aimed at determining the impact of deploying an advertising banner on consumer buying habits on their mobile site. The purpose of this experiment was to measure the influence of the banner on key metrics such as conversion rates and the average expenditure per user.

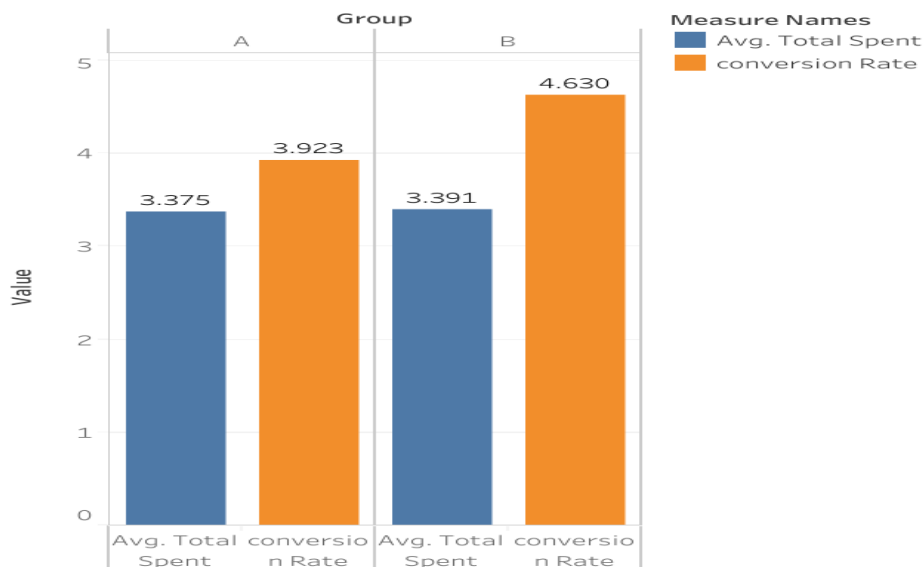
Context

Over a span of 13 days in 2023, Globox conducted an A/B test with two randomly assigned groups: Group A (control) consisting of 24,343 users, and Group B (treatment) comprising 24,600 users. Group A recorded a conversion rate of 3.92%, whereas Group B achieved a higher rate of 4.63%. Additionally, the average spending per user in Group A was \$3.375, slightly lower than Group B's \$3.391.

To evaluate the significance of the difference in conversion rates between the groups, statistical analysis revealed a probability of 0.00011, which is below the accepted error tolerance threshold of 0.05. This led to the rejection of the null hypothesis, which posited no variance in conversion rates, thereby substantiating the advertising banner's positive effect on conversion rates.

Conversely, when examining the average spending per user, the probability of the observed difference being by chance was 0.94386, surpassing the 0.05 threshold. This indicates an insufficient basis to disprove the null hypothesis, suggesting no marked difference in average spending between Group A and Group B. An accompanying chart will illustrate the variances in both the conversion rate and average spending for each group.

Compare the conversion rate and average amount spent between the test groups.

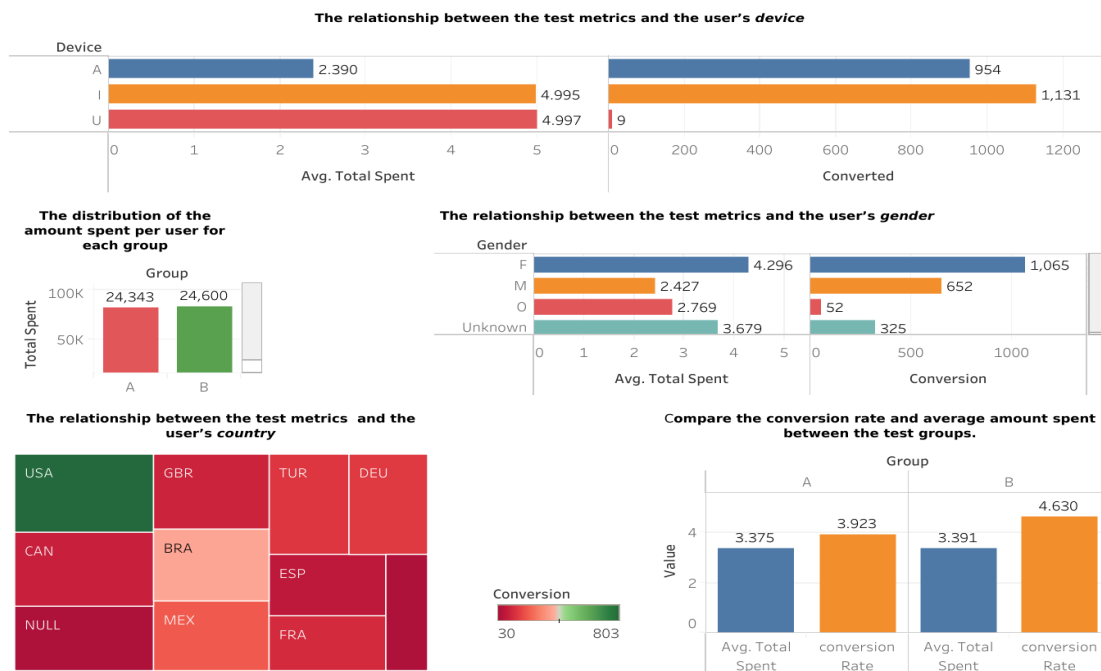


A.B TESTING IN GLO BOX

In the following, we examine the trend of increasing the number of users versus the amount spent, and the output of the chart shows that at first there is an increasing trend, and then with the increase in the number of users, the amount spent by them decreases successively. Obviously, to explore the relationship between the metrics and device types (Android, iPhone, and Unknown device), gender (Female, Male, and Other), and countries (TUR, BRA, FRA, USA, MEX, DEU, CAN, GBR, ESP, AUS) the following dashboard visualization will help to understand the difference between key metrics and objects.

Result of A.BTesting in GLO BOX

Recap the key findings from the analysis:
Females exhibit the highest conversion rate and average total spent...



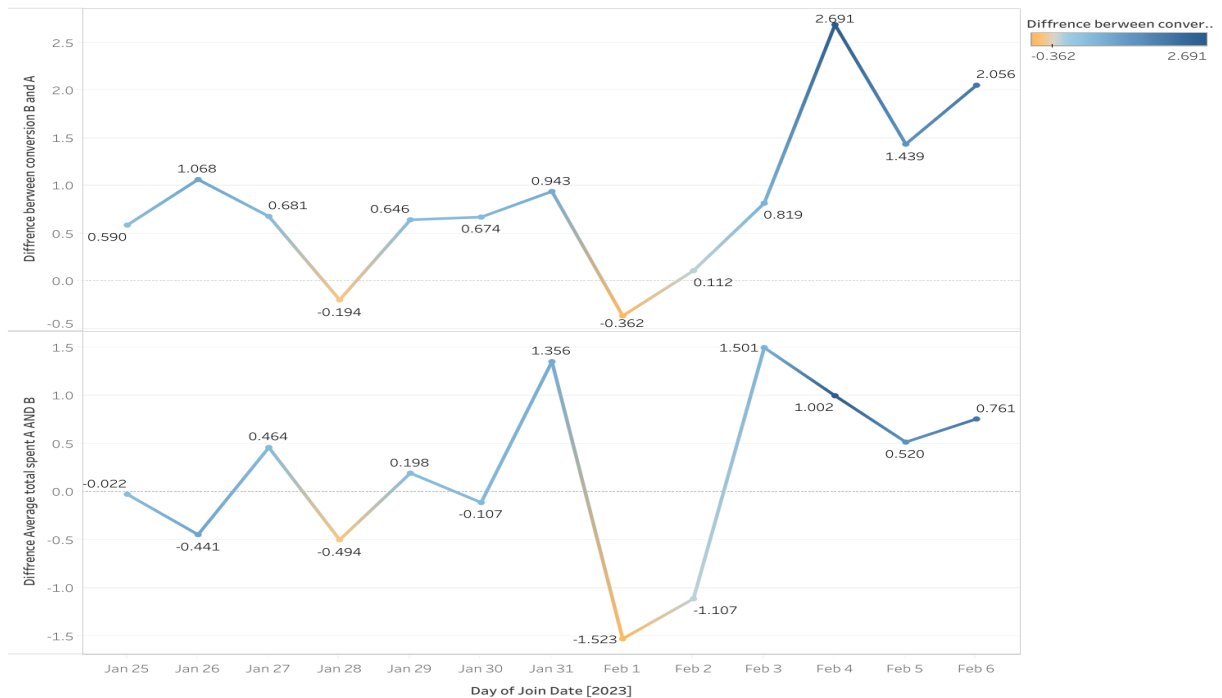
The Novelty Effect:

After conducting a comprehensive analysis of the disparity in conversion rate and average amount spent rate between Group A (no banner) and Group B (banner), we have determined that there is no evidence of a novelty effect.

A.B TESTING IN GLO BOX

Novelty Effect

After thoroughly analyzing the difference in conversion rate and average amount spent rate between two groups, namely Group A (no banner) and Group B (banner), we have ..



Detailed Results

Conversion Rate Impact: The A/B test showed a statistically significant increase in conversion rates for the test group (Group B) exposed to the banner, compared to the control group (Group A). The p-value was below 0.05, confirming the efficacy of the banner in enhancing user conversion.

Average Spending Analysis: No significant difference was observed in the average total amount spent between the two groups, indicating that the banner did not significantly influence overall spending levels.

Demographic Insights:

Gender: Females demonstrated higher conversion rates and average spending, suggesting potential benefits in targeting this demographic.

Device Type: iOS device users showed the highest conversion rates and spending, indicating an opportunity to optimize the website for iOS platforms.

Geographic Focus: The USA emerged as the top-performing country in both conversion rate and average spending.

A.B TESTING IN GLO BOX

Novelty Effect: Analysis revealed no novelty effect, suggesting the banner's influence remained consistent over time.

Power Analysis: Recommended sample sizes were determined using STATSIG, suggesting 60,600 users for conversion rate analysis and 186,000 users for average spending analysis, with specific durations to achieve these sample sizes.

Recommendations:

Implement the Banner: Strongly recommended to deploy the banner on the mobile website for its proven positive impact on user conversion rates.

Increase Average Order Value: Explore strategies like personalized offers and upselling techniques to enhance the banner's impact on spending.

Target Key Demographics: Focus on females, iOS users, and the USA market to maximize effectiveness.

Future Testing and Power Analysis: Emphasize power analysis in future tests for statistical accuracy and robustness.

Long-Term Strategy: The banner's sustained effectiveness supports its long-term use on the website.

Appendix

[Tableau](#)

[SQL QUERIES](#)

A.B TESTING IN GLO BOX