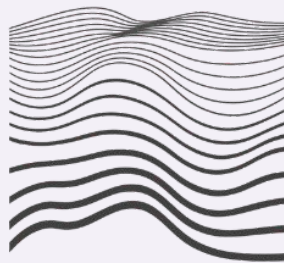


Large Sample Test



project by:



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1

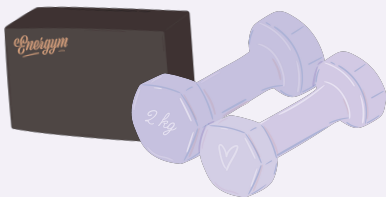
Summary



2

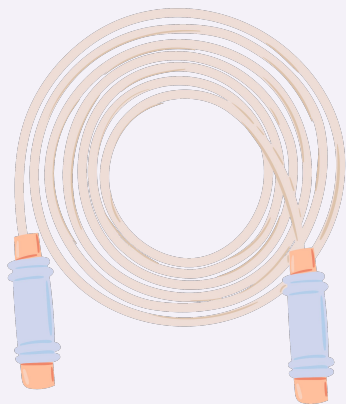
Full Deck

Summary



Background

*A national class-booking platform integrates into websites of their customers, which are fitness studios. The platform want to run an **A/B test on the CTA** that exists on the landing page framework to start booking a class.*



Hypothesis

For CTA on a class-booking platform:

**The treatment landing page
performs better than the control**

(significance at the 5% level)

control



Zen Yoga



Schedule

4% conversion

treatment



Zen Yoga



Book Now

TBD conversion



Conversion is currently on the **lower end of industry benchmarks** (up to 5%) & there is reported **confusion over "schedule" having dual meaning** (view class schedule vs. book)

More **clarity** and a sense of **urgency/encouragement**

Methodology

Randomized controlled experiment:

Randomly assign users
to each group

*to ensure no pre-existing
differences*



Use Control that does
not receive treatment

to use as a baseline

*Control
vs.
Treatment(s)*

Statistical Test

I will use **z-Test for Two Proportions**
since there is a large sample and two
conversion rates to compare

Test Design

Sample Size

The sample size needed is **~14,000 users** (per group)

Significance level: 5%

Power: 80%

Baseline conversion rate: 4%

Sample Needed: ~14,000 / group

Results

Test confirms:
treatment > control

Conversion Rates:

Control Conversion Rate: 4.01%
Treatment Conversion Rate: 4.64%

95 percent confidence interval:
0.002327633 1.000000000

Observed treatment
conversion rate is:

15%

higher vs.
control

True treatment
lift is:

≥ 0.23 pp

(% points) vs.
control

**95%
Confident**

Result is **statistically significant**:

P-value: **0.0044 (< 0.05)**



Test was **adequately powered**:

Result Power: **83.6 %**



Revenue Impact

Control ("Schedule"):

$$\text{users} * \text{bookings} * \text{avg price} / \text{class} =$$
$$14,500 * 582 * \$30 = \$17,460 \text{ revenue}$$

$$\text{Revenue} / \text{user} = \$1.20$$

Treatment ("Book Now"):

$$\text{users} * \text{bookings} * \text{avg price} / \text{class} =$$
$$14,550 * 675 * \$30 = \$20,250 \text{ revenue}$$

$$\text{Revenue} / \text{user} = \$1.39$$

Observed difference: \$0.19 / user

(15.6% uplift)

~\$216K+

/ year
expected
uplift

for 300K users/month

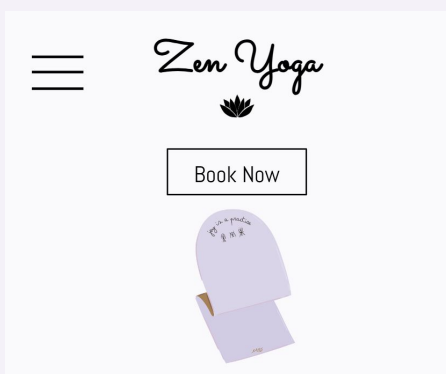
95% Lower Bound: \$0.06+ revenue /user

(5.7%+ uplift on \$1.20 / user)

Recommendation

In this case, due to the significance, statistical power, low cost of implementing treatment, and the sizable impact & improvement for studio customers...

**I recommend moving forward with
implementing the treatment:**



notebook link:



Tools: R in Google Colab
Data Source: Self-generated

Click for Full Deck

