

Class 13 Case Study: Improve User Engagement for Instagram Using A/B/N Testing

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Section 1

Case Background

Business Objective

- Instagram aims to increase user engagement and activity through
- We can propose gamification strategies based on scientific theories
- Need to empirically test whether proposed gamification strategies are effective using A/B/N testings

Situation Analysis

Conduct a situation analysis to understand the business environment of Instagram in UK:¹

- What is Instagram's business model?
- How does Instagram make revenues?
- Who are Instagram's customers?
- What are the major competitors and their relative strengths and weaknesses compared with Instagram?
- Who are the collaborators of Instagram?
- PESTLE analysis: any particular legal and regulatory issues that Instagram needs to be aware of?

¹All answers are on the website.

Section 2

Theoretical Motivations

Theoretical Motivation for Business Ideas

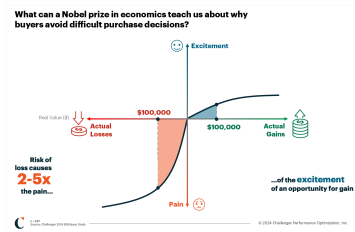
- When proposing business ideas, we should base our proposals on scientific, well-established theories from different disciplines.
 - **Bottom-up approach:** start with theories and then generate business ideas
 - **Top-down approach:** start with business ideas and then find theories to support them
- Let's first see some examples of behavioral theories!

Behavioral Theories

- Framing effect
- Endowment effect
- Left-digit effect
- Social comparison theory
- Prospect theory
- Many more...

Prospect Theory

- Prospect theory posits that when people feel more pain from losing something than pleasure from gaining something.
- This theory can be used to explain why people are more likely to engage in activities that prevent loss than those that promote gain.



Business Proposal

- Implement gamification features on Instagram to increase user activity based on the theories of Social Comparison and Prospect Theory.
- Let's have a brainstorm discussion and come up with some ideas on how to implement gamification features on Instagram.

Potential Strategies

- **Endowment effect:** Points system and badge system for engagement (likes, comments, shares)
- **Social comparison theory:** Leaderboards showing top users; Social comparison through activity rankings
- **Prospect theory:** Time-limited rewards and achievements

Section 3

A/B/N Testing for Instagram

Step 1: Decide on the Unit of Randomization

- What would be the best unit of randomization?

Step 2: Mitigate Spillover and Crossover Effects

- What are the potential problems for spillover and crossover?

Step 3: Decide on Randomization Allocation Scheme

- How should we determine the randomization scheme?

Step 4: Collect Data

- What is the sample size we need?
- What data should we collect?

Step 5: Data analytics

- Randomization checks
- How to estimate the treatment effects?

After-Class

- (optional) Test and learn: How a culture of experimentation can help grow your business