

Studying Conformity in Consumer Behavior Using Peer-Based Recommendation Models



Developing the Hypothesis

The famed Asch conformity experiments conducted by Solomon Asch in 1951 explored the extent to which opinions are susceptible to groupthink despite glaring reality. Since then, there have been similar studies showing that people are more likely to behave in ways that are untypical of their personalities if such behaviors are perceived as norm in any setting. Bearing in mind these tendencies, this proposed experiment intends to test the influence of groupthink on consumer behavior by controlling the source of influence. Is groupthink effect more likely to be evident when the source of influence is from within social circles compared to the source of influence coming from impersonal but reputable sources? The goal of this study is to test the null hypothesis that people are not more susceptible to groupthink in their interaction with a product, if that product is recommended by someone in their social circle (or someone whom they have trusted personal interaction with), compared to a product recommendation from socially reputable or influential recommendation models.

In the past few years, influencer-style marketing has gained a lot of popularity and with proven phenomenal results. However, is there any possibility of further increase in these results if the influence is focused within social groups? Are there marketing models that could be built on peer-recommendation systems to boost product sales? These are interesting outcomes that could be inferred based on the outcomes of this experiment.

Identifying the Methods

The products of choice for this experiment will be Rotten Tomatoes, a movies recommendation website (<https://www.rottentomatoes.com/>) which can be regarded as a figure of authority in its own domain and is also well known by majority. Rotten Tomatoes is a site which a lot of people are likely to use, and this experiment will aim to test how a reinforcement of people's perception of the products (in this case movies) using recommendation from peers could affect their interaction or potential use of the products. Subjects who are selected will be those who are sufficiently familiar with the reputation of the site, i.e. those who are indicate that they are likely to use the site while deciding to watch a movie. Familiarity will be ascertained by a pre-survey which will be distributed on social media platforms to the intended participants. The survey will contain questions such as:

- Would you consider yourself to be someone who likes movies? (*Answer options: Yes, No*)
- Have you heard of Rotten Tomatoes? (*Answer options: Yes, No*)

People who select "No" to the second question would not be allowed to continue with the survey as knowledge of the platform is a requirement for the experiment. People who select "Yes" will proceed with the survey:

- What is your most preferred movie genre? *Only one movie genre required (*Answer option: Paragraph*)
- How often do you watch movies? (*Answer option: Very frequently, Often, Hardly, Never*)
- What do you think Rotten Tomatoes is known for? (*Answer options: Paragraph*)
- How likely are you to check movie ratings on Rotten Tomatoes before deciding to watch a movie? (*Answer options: Likert scale of 1 to 5*)
- How likely are you to decide to watch a movie you were originally not interested in if you found out that it has great ratings on Rotten Tomatoes? (*Answer options: Likert scale of 1 to 5*)
- How likely are you to decide to watch a movie you weren't originally interested in if you found that it had poor ratings on Rotten Tomatoes? (*Answer options: Likert scale of 1 to 5*)

Participants would preferably be volunteers who are students from Berkeley for easy accessibility since participation for this experiment requires physical presence of the participants. Recruitment will be done using various UC Berkeley-affiliated social platforms and word of mouth. A target number of 100 subjects is anticipated for this experiment, 20 of which will be assigned to a pilot study. Each participant will be assigned to the treatment and control groups by a complete randomization method, using a coin toss simulation.

Experimental Procedures

For both the pilot study and the full-scale study, an equal number of participants will be assigned to both treatment and control. For the pilot group, 10 participants will be assigned to the treatment group and 10 to the control group, and 40 for each group in the full-scale study. The experiment will be carried out in a single session and as a group.

For this experiment, 5 movies will be selected, each of different genre (Action, Comedy, Romance, Horror, Science Fiction). Participants in the treatment group will be shown movie synopsis of each, as well as trailers and ratings from Rotten Tomatoes. Movies selected will have ratings ranging from very bad (20%) to very good (98%). After the initial display, without any discussions among the group, each participant will be asked to fill out a survey indicating how likely they are to watch the movie on a scale 5-point scale of -2 (very negative) to 2 (very positive). As a next round, participants will then be asked to discuss what they think of the movie. One of the participants within the treatment group will be a fake who would have been secretly asked to speak very highly of the movies with low ratings and very poorly of movies with high ratings, giving descriptive detail of events that occurred. Following these discussions, the participants will then be asked to indicate on another survey, how likely they are to watch the movie being discussed on the same 5-point scale. The sequence of events will be the same for each movie.

For the control group, there will be no fake participants and scores of likelihood of purchase will be collected right after the initial rating-display of each movie by the recommendation platform without any discussions among the group. The same movies will be used for the control and the treatment group and the sum of all scores per participant per movie will be the potential outcome.

Statistical Analysis

The outcome of concern for this experiment is whether there is a treatment effect when comparing the assigned ratings of likelihood of product interaction following influencer recommendation only

in the control group with recommendation from peers in addition to influencer recommendation in the treatment group. As earlier mentioned, for the control group, the potential outcome will be the sum of scores for all the movies shown for each participant while in the treatment group, the potential outcome will be the sum of scores post-treatment. Treatment being the peer recommendation/discussion. The potential outcomes for each participant may be interpreted as the likelihood of product interaction.

To measure the treatment effect, the standardized formula for measuring the average treatment effect will be used, calculating the average difference between the potential outcomes for both the treatment and the control group.

$$ATE = \frac{1}{N} \sum_{i=1}^N \tau_i$$

Where :

$$\tau_i = Y_i(1) - Y_i(0)$$

A large randomization simulation of up to 5000 will also be carried out using the same potential outcomes and calculating the one-tailed and two-tailed p-values. One tailed p-value based on the average instances of the ATE in the simulated randomization that are at least as large as the actual ATE, interpreted as whether the likelihood of watching a movie increases following peer recommendation and the two-tailed p-value based on the average instances where the absolute values of the ATE in the simulated random assignments is at least as large as the actual ATE and interpreted as whether peer recommendation increases or decreases the likelihood to engage with a movie following peer recommendation

As a further analysis, the Confidence Interval can also be calculated, generating the probability of intervals that bracket the true ATE in series of hypothetical replications of this experiment under identical conditions. Even if our True ATE doesn't prove any effect, we can infer how by how much people feel more positive about a product, following peer recommendation. This could also have some impact in future experimentation.

Risks and Constraints

The target group for this experiment is students. This is because the subjects are more easily accessible currently and the experiment will require little to no cost. Though students alone are not truly representative of the larger population outside of this group, but because physical presence is required for this experiment, the participants must be easily accessible. However, a detailed report of this experiment will be provided to encourage reproducibility across any other desired demographic.

Another foreseen problem could be with the recruitment of participants. Students might be too busy with schoolwork to participate in the experiment. Therefore, the experiment is designed to be completed in single sessions per group to save time and combat the risk of dropouts. While there is some hope that the fun elements in this experiment would be enough to spur interest in participation, as last resort, participation would be incentivized by cash or kind.

To prevent the participants from giving answers which they think are expected for this experiment, there will be no prior explanation of the desired outcome to any of the groups and the participants in the treatment group will not be made aware of the fake/planted participants. Also, there will be one fake participant for all the movies shown. This is because people's responses are expected to be more biased towards the views of the fake participant if they start to consider them to be a movie guru of some sort. This would reinforce the group-think concept and would be interesting to see how it affects the trend of scores from the first movie review to the last movie review.

There is a likelihood that people's preference for genres might affect their potential outcome which is why a randomized experiment is best. For higher precision experiment may be carried out using blocking random experiment, blocking on participants' preferred movie genre as the predictive feature. In which case, the overall ATE will be calculated as the sum of ATE for each block.

Conclusion

There are currently a lot of grey areas in the study of consumer behavior, especially around what influences perception and encourages interaction. Of all the methods that have been explored, the most effective, yet unexplored area could be incentivization from within social circles. Besides the referenced studies on conformity, there are also studies that show that people are more likely to trust what they hear from those whom they know personally, compared to people who they perceive as strangers, who might be inclined to lie for personal gain.

While not dedicating a substantial part of this document to the specifics on how peer recommendation models can be structured, there is strong reason to believe that this is an area worth exploring and which could have an even greater effect on product interaction than influencer-style marketing.

References

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