

**Final Experiment Plan:
The DoorDashers' Stories**

**Aabha Huddar
Matthew Christy
Vandana Srinivasan
Kudzai Mushongahande**

**Drexel University: College of Computing and Informatics
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Dr. Jina Huh-Yoo
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Abstract

DoorDash has been a lifeline for both restaurants and drivers since the start of the COVID-19 pandemic. The increase in online orders has been helping restaurants keep their doors open, while the compensation and tips received from fulfilling these orders have been helping millions of Dashers facing economic hardships make ends meet. This report analyzes how compelling incorporating Dashers' personal stories in the payment and tipping tab is on the amount and likelihood of tips from users. We hypothesize that if we provide DoorDash users with an emotional incentive, they will be inclined to tip more and more frequently. We seek to answer, *"Will including a personalized message from the Dasher about 'how COVID-19 has impacted their lives result in an increase in tipping rates and amounts?"*

To answer this question, we will be conducting A/B tests on two user Test Cells; Test Cell B will receive the Dasher story update (an option to view their story and tip), and Test Cell A, the control Test Cell, will continue using the current DoorDash interface that give the user the option of tipping without viewing a story. We predict that including a personalized message for Test Cell B about how COVID-19 has impacted their Dasher's life will increase tipping rates and amounts because the empathetic call to action is that "extra nudge" that will either change or improve their tipping behavior while using the DoorDash app.

Introduction

While the number of studies on the Online Food Delivery (OFD) industry remains limited, it is an emerging market with an estimated revenue of 85 billion dollars by 2024. (Statista, 2019). OFD grew double during the pandemic due to lockdowns and social distancing practices. There is ample research done on the tipping culture in restaurants and what it indicates about user relationships. However, with the emergence of food delivery apps like Grubhub, DoorDash, and Uber Eats, there is little information on what motivates users of OFD apps to tip their delivery persons (agents).

According to Cho, Sun (2014), the factors that impact tipping in restaurants are atmosphere, food quality, service, gender of the user, gender of the server, air quality, etc. With these factors being out of the equation, it highlights a need to establish what factors impact tipping culture in the OFD industry. Research by Emergent Research Forum on OFD indicates that "service failure" affects "behavioral loyalty." This suggests that the service of the delivery staff would impact the user's likelihood to order from a particular restaurant. These statistics help us understand the OFD industry from an academic point of view but also help restaurant managers and owners decide if and what OFD platform they would want to choose as their service partner. Diving

deeper into the world of service industry economics reveals that companies like Lyft and DoorDash have shifted their compensation models after the COVID -19 pandemic, using stock options and other forms of compensation (Chen et al., 2022). However, the delivery agents' revenue possibilities and tipping structure remain the same.

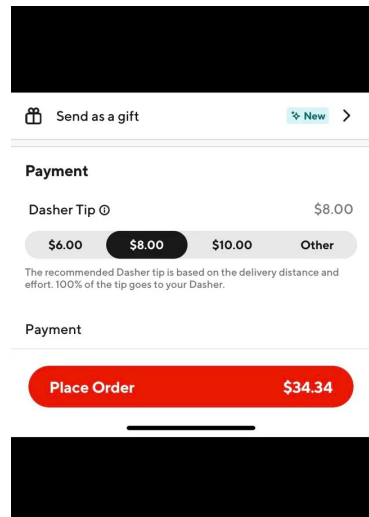
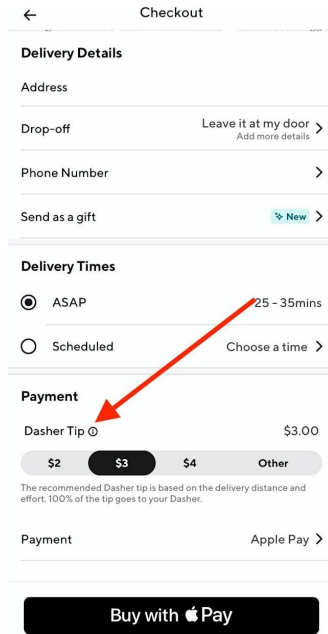
According to Market Watch, the use of delivery services more than doubled in a little over the first six months of the pandemic (Sumagaysay, 2020), increasing "Door Dashers" ("Dashers"), independent contractors that DoorDash pays to perform meal deliveries to millions of Americans nationwide. Many of these new Dashers were experiencing economic hardships due to becoming unemployed during the pandemic (Bidar, 2021).

Technically, Dashers are paid for deliveries, but users are also presented an option to provide a tip during checkout; however, a 2019 New York Times article reported that users only tip about fifteen percent of the time (Newman, 2019).

Moreover, data from SecondMeasure.com indicates that DoorDash has 29 percent of US users' delivery business, which places it second after Grubhub. With such a significant impact in the OFD market, we were inclined to explore DoorDash further. Having seen a similar tipping model in the Indian delivery giant "Zomato," where some delivery agents shared "what they were saving for " on the app, we decided to implement this model for our study.

Methods

This experiment aims to assess whether an empathetic approach to tipping increases the likelihood and the dollar amount of tips to drivers of OFDs. As previously stated, we will be conducting A/B tests on two user Test Cells; Test Cell B will receive the Dasher story update. Test Cell A, the control Test Cell, will continue using the current DoorDash interface.



Figures 1 & 2 show DoorDash's current tipping interface; there's only an option to increase the tip and no human connection to the drivers delivering the food. This is how the control Test Cell will continue to see the app.

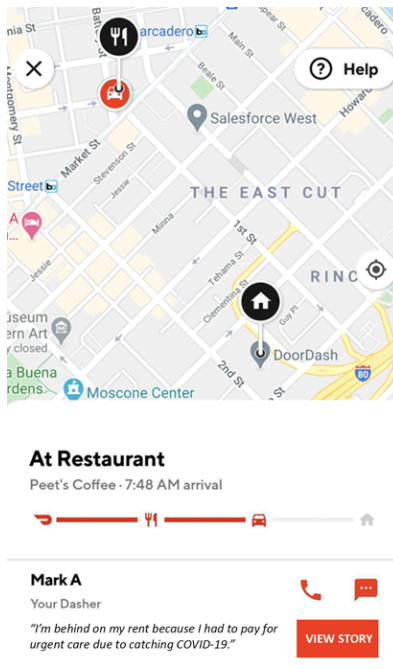


Figure 3: Mockup of proposed changes for the Test Cell B DoorDash Delivery Status.

Upon opening the DoorDash app, users will be randomized into the control or Test Cell. The control Test Cell will receive access to the current DoorDash app, while Test Cell B will receive access to DoorDash with the following change implemented:

The Delivery Status screen of DoorDash will receive a modification to display a personalized quote of how COVID-19 may have affected their Dasher. A "View Story" option will be located next to it so that the user may tap to view the Dashers story page, where users may reconsider adding a tip or increase the existing tip amount.

- Do they tap the "view story" page and reconsider tipping?
- Do they increase the amount of their existing tip?

Hypothesis:

We predict that providing a way for users to view personal stories for Door Dashers' will increase the likelihood of tipping and the tip amount because users will have an empathetic viewpoint of Dashers' hardships during the COVID-19 pandemic. We will know this is true when we see an increase in tips and dollar amounts.

Data Collection Plan:

DoorDash analytics suggest that Friday, Saturday, and Sunday evenings are the most common days people order takeout food, and late-night orders are more common on Fridays and Saturdays. We have decided to run our A/B tests on Fridays, Saturdays, and Sundays from 5 pm until 3 am for five weekends (approximately one month). No specific user segments will be considered as this is an experiment on financial compensation (tips) resulting from human empathy (Dashers' COVID-19 stories). The test and the control Test Cells will consist of 250 randomly selected DoorDash users. The data to be collected and the metrics used for analysis are explained below.

- Story views and the number of tips and tip amounts received are appropriate metrics to accomplish the objectives of this A/B test. These quantitative data will be automatically collected utilizing a dedicated A/B testing tool with integrated statistical analysis functionality (e.g., Optimizely); this is a form of remote, unmoderated observation.
 - The following metrics will be collected from Test Cell B:

- Primary metric: Whether a user used the "view story" button to view Dashers' personal messages.
 - Secondary metric: The number of tips received after users have viewed Dashers' personal stories.
 - Secondary metric: The dollar amount of the tip received after users have viewed Dashers' personal stories.
- The control Test Cell A will continue to collect data on whether the user tipped and the amount for comparison.

Data Analysis Plan

There will be two categorical values; the first is whether the user viewed a Dasher's Story or not (Test Cell B), and the second is if there was a tip left (both Test Cells A and B). There is one continuous numerical variable: the tipping amounts (both Test Cells A and B). All data variables are quantitative.

We will begin by analyzing the conversions in Test Cell B. The data of the users who did not view the story will be discarded. We will then compare the conversions (those in Test Cell B who tipped after viewing the story) to the number of users who left tips in Test Cell A. This will determine the likelihood of users leaving tips and any difference in tipping amounts after reading the story to those who did not have the option to read the story. This will be done in two tests:

- The first test will be a proportion test to analyze the proportion of users who tipped after reading the story in Test Cell B to the number of users who tipped in Test Cell A.
- The second test will be a t-test with a .05 alpha to compare the tip amounts of users tipped in Test Cell B to the amounts of users tipped in Test Cell A.

We expect that the results from the data collection and the analysis using the data from the two tests supports our hypothesis that users who can view and empathize with a Dasher's personal story will be more likely to leave a tip at a more significant amount.

Discussion

Interpreting the results

Success: If the analysis of the results of A/B testing proves our hypothesis and the experiment succeeds, a secondary experiment should be conducted to verify the first experiment's results as per our budgetary limits. Edge cases might include demographics such as economic status, cultural viewpoints, etc. Should the second experiment yield the same results, a rollout of the feature would be recommended. We hope that the rollout will not affect users who aren't able to tip but persuade those who can.

Failure: If the experiment fails, it might be an inherent cultural viewpoint regarding tipping, which may have influenced the results. Cultural views can vary from economics to geographical location. Surveys sent to the test cell could help collect data to determine why the experiment was a failure resulting in redesigning the experiment. An example would be a second experiment that includes the geographical demographics of tippers being tested in both test cells should be considered. This may yield data that would indicate the type of person ordering, e.g., delivery to an area with a high student population, such as a university.

Design Implications to Consider:

The stories shared by the Dashers can also come across as pretentious and, in a sensitive environment, might trigger the user to not tip instead of having a positive impact.

The possible risk of a "slight nudge" being a dark pattern remains a problem in the service app industry and with such features that use users' empathy. This direction of the results can take a risky turn. What seems like a harmless narration of personal struggle can inadvertently be viewed as a ploy to press users.

Potential Pitfalls:

This experiment may not include all the factors that impact tipping habits. To tackle this problem, an experiment on factors that influence tipping in DoorDash can be a proposed experiment 'O' for this research. Further exploration of what empathy looks like and how it can be quantified amongst online users can help us understand users and their habits.

Another consideration is that the "View Story" option might be enticing at first, but users may develop an aversion to tapping the option out of fear of influence, hence negating the entire point of the design change.

Conclusion

As mentioned in the introduction, while there is some research in the field of OFD, the factors that determine tipping behavior in this industry are yet to be determined. While our research aims to determine if sharing personal stories affects tipping behavior, what this suggests about the empathy towards the delivery persons/agents remains unquantified. However, we hope that our hypothesis will help quantify this behavior to some extent. This will establish a relation between tipping behavior and emotional incentive.

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