

Lime Electric Scooters

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Table of Contents

- **Executive Summary**
 - Major findings
 - Recommendations
- **Introduction**
 - Detailed background information
 - Business environment
 - Research objectives
- **Methodology**
 - Research design
 - Data collection method (Focus group, Questionnaire development)
 - Sampling framework
- **Findings and Recommendations**
- **Future Research**
- **Appendix**
 - Focus group summary
 - Questionnaire
 - Statistical output

Executive Summary

After finding out the complaints about pricing of Bird in the campus and low availability of Lime Electric scooters, we thought of helping the Lime management to do a feasibility study and hyper-local market research about the usage on campus. As Lime has some success stories with UT Austin, ASU slightly smaller campuses than UCSD, this market research is an important preliminary task and is expected to turn out to be fruitful. Although, there might be some odds against leading to things going awry. In short, the managerial decision problem for this market research study is:

“To increase the usage of Lime electric scooters in UCSD and to understand how feasible it is.”

Major Findings

After conducting focus group research and analyzing survey data, we have the following major findings:

1. Top three concerns of customers: safety, don't know how to use, and high price. (*Figure 3*)
2. Students who have used electric scooters tend to have good impressions and are likely to use them again, while students who haven't used before still aren't likely to use them in the future. (*Figure 4*)
3. Those students who haven't tried before have stereotypes about electric scooters, and they imagine that “they are not easy to use”, because of no clear instructions. (*Figure 5*)
4. Bird has a larger market proportion in UCSD than Lime does. (*Figure 6*)
5. Most students used electric scooters once and just for fun, and stop using them after the first try. (*Figure 7, Figure 8 and Table 1*)
6. The frequency of students who used electric scooters for commuting is significantly lower than normal commuting frequency. (*Table 1*)

Recommendations

1. Change pricing strategy: $\text{Net cost for user} = \text{Base fare} + (\text{Cost per minute} * \text{time in ride}) + (\text{Cost per mile} * \text{ride distance})$
2. Provide safety equipment: Provide helmet for each scooter in UCSD. Require that the ride ends only if helmet is properly returned. Otherwise, users will be charged more based on the pricing policy.
3. Implement promotion strategies: (1) First trial is free. (2) Establish a partnership with UCSD. (3) Offer discounts for pair riding and/or referring.
4. Provide instructions: Construct easy-to-find instructions with vivid visualizations on mobile APP. Distribute flyers with these instructions at the beginning of each quarter.

Introduction

- **Background:** The usage of lime was successful at ASU and UT Austin, which are slightly smaller campuses than UCSD. However, the problems with those campuses are not with the usage, students are very excited to use them. The business setup in those campuses is at a different level where the issues are about parking because of carelessness of students. Apparently, Lime is at a risk completely losing the partnership with these campuses, it would be an added benefit along with market research for UCSD to consider all those factors. And we tried our best to capture those nuances in this study for making an effective recommendation.
- **Business environment:** UCSD is at an early adopter stage and has a large campus. The density of Lime scooters is quite low compared to a player like Bird. There are scooters which give a false information about battery level on the app and when planned for ride, the battery level is low enough to not being able to start a ride causing user disappointment.
- **Research objective:** Increase the usage at UCSD to increase its market share when it comes to students' user group. Understand the feasibility of increase in usage.

Methodology

Research design:

1. We first did some brainstorming and research about the managerial decision problem and listed strengths, weaknesses, opportunities, and threats. We listed the questions we want to further investigated.
2. We then conduct a focus group research to get more insights about our managerial problem. We did a voice record, asked questions on our lists, and had conversations with the participants about the ideas that they had. The focus group was also planned in such a way that we had an equal number of users and non-users. It really turned out to be useful implementing the focus group as we planned. (*Refer Documents - Appendix*)
3. We designed our survey based on our hypothesis and the insights we got from the focus group research.

Data collection method:

- Focus group participants: 4 in total. 1 undergraduate student who have tried electric scooter before, 1 graduate student who have tried electric scooter before, 1 undergraduate student who have NOT tried electric scooter before, and 1 graduate student who have NOT tried electric scooter before.
- We had both open-ended and close - ended questions (*Documents - Appendix*), two moderators and two note-takers. Our note-takers are the main resource for the focus group insights. We also made sure we record the responses while asking questions so that we can revisit the audio if needed.

Questionnaire development:

1. Demographic information: we want to know how people in different age, gender and study levels feel about different aspects of electric scooters.

2. We divide the survey into two main parts: people who have tried electric scooters before, and people who have NOT tried electric scooters before. For people who used it before, we mainly focused on their riding experience and for people who haven't used, we mainly focus on the reasons why they never tried.
3. We include questions that help validate some of our hypothesis, which are:
 - People care a lot about safety.
 - Some audience didn't use it because they have little knowledge towards the existence of certain electric scooters/the way to use the scooters/how to start using it/where to find and park a scooter.
 - People think that price is too high for electric scooters.
 - The audience have a positive attitude towards the presence of electric scooters on campus although they don't use it.
4. We want to know what are our major competitors (like Bird and Spin), so that we can do further research.
5. Besides asking people about four major features of electric scooter: price, instruction, accessibility, and safety, we also asked all other information we want to know about our customers, like willingness to pay, frequency of usage, purpose of usage, attitudes toward future usage, recommendations and suggestions that they can give to Lime company.

Sampling framework:

- We tried to sample from all study levels (Bachelor, Master, Phd, PostDoc), all genders (male, female, others), and users who have tried before and have NOT tried before.
- There was some **non-response error** of about 10% of respondents not finishing the survey. But there is **no non-response bias** because of this error as we know that they are students (partially filled out the survey).
- We are also confident about not having response bias (*Figure 9 - Appendix*) because the respondents who filled the survey completely took an average of about 90 to 180 seconds and all the respondents who fall on the lower tail (spent less than 30 seconds) haven't finished the survey. These are the ones which were excluded before performing our analysis.

Findings and Recommendations

Finding 1: Students' concerns

- For all means of transportation, the top two concerns for ucsc students are convenience and time-efficiency (Figure 1).
- When breakout people's opinions by different groups, for all means of transportation, there is no obvious difference between the choice of male and female, but there are some differences of choices among different levels of study: For convenience, Bachelor students focus on the most, while PhD students focus on the least. On the contrary, student care less on cost, but PhD students care more the cost. (Figure 2).
- For people's concern about electric scooters, different groups tend to have the same concern ranking, and the top three concerns are: Safety issues, Don't know how to use, and High price. (Figure 3)

Finding 2: Students' impressions on electric scooters

- Students who have used electric scooters before believe electric scooters "price is high", "Easy to use", "Easy to find", and "Somewhat unsafe". Overall, people who used before tend to have good impressions on riding scooters and they are likely to use them again.
- Students who haven't used before believe electric scooters "price is high", "No clear instructions", "Hard to find" and "Not safe". Overall, people who haven't used have negative impressions on riding scooters and they still aren't likely to use them in the future.
- All students agree that electric scooters are "high-price" and "unsafe".
- Students have stereotypes: the big disagreement between students who used them and students who haven't used them is about "instructions". Those students who haven't tried before have stereotypes about electric scooters, and they imagine that "they are not easy to use", because of no clear instructions. (Figure 4 and Figure 5)

Finding 3: Lime's competitors

- Bird has the largest market proportion in UCSD, which is 47.11%, while Lime ranks No.2, which has 29.75% market share. (Figure 6)
- Besides Bird and Spin, students also mentioned that they have used electric scooters from Lyft, Grin, and Uber.

Finding 4: Purpose and frequency of riding electric scooters

- In terms of frequency, more than half of the student users have used electric scooters only once, and seldom students ride them every day. (Figure 7)
- In terms of purpose, almost half of the students used electric scooter just for fun, and less than 20% of students used them for commuting. (Figure 8)
- Most users who tried electric scooters just for fun stopped using them after the first try.
- The frequency of students who used electric scooters for commuting from class to class is "Once in a month", which is significantly lower than normal usage frequency. (Table 1)

Recommendations:

Recommendation 1: Change Price Strategy

- Current price in San Diego: \$1 to unlock + \$0.36/min. This kind of pricing strategy only based on time is not reasonable and not safe for students, because students tend to increase their speed to minimize the riding time, which is dangerous in crowds.
- Thus, we recommend to price based on both time and distance. Formula: Net cost for user = Base fare + (Cost per minute * time in ride) + (Cost per mile * ride distance). Specific numbers need future research data.
- The percentage increase in cost per ride (*Figure 10*) is higher for Time-based pricing and hence Lime should consider changing the pricing to a Time+Distance-based calculation. This in turn will make sure Lime is charging users similarly (magnitude of price) and yet allowing them to take some extra time to complete their ride without haste and injure themselves. (*Table 3,4 for sample calculation*)

Recommendation 2: Provide Safety Equipment

- Earlier this year, Lime Electric scooters gave away 250,000 free helmets for taking its Respect the Ride Safety pledge.
- We still recommend to provide helmet for each scooter in UCSD since a lot of students do not have their own helmets.
- Require that the ride ends only if helmet is properly returned. Otherwise, users will be charged more based on the pricing policy.

Recommendation 3: Implement Promotion Strategies

- Offer free first trial to encourage students who haven't used before to ride.
- Establish a partnership with UCSD. Take the MTS bus as an example, students can buy quarterly pass along with their tuition and they can ride Lime Electric Scooter for the whole quarter without paying for each time. Also, like Lyft, Lime can offer \$5 cash back for each 5 rides and sell \$60 Shared Credit Package with \$50 (20% bonus).
- Offer discount for pair riding, so every time two friends ride together, they can enjoy 5% off.
- Offer discount for referring, so every time an old user introduces a new user to ride Lime scooter, both of them will get a 50% discount. This can help a one-time user use more by introducing new users to Lime. That way frequency of usage might get better from using it only once to other possibilities.

Recommendation 4: Provide Instructions

- Construct easy-to-find instructions with vivid visualizations on mobile APP. Compared to Bird, Lime doesn't have instructions shown on the home page and it's hard to find instructions on the App.
- Distribute flyers with these instructions on library walk at the beginning of each quarter in case that some students haven't downloaded the App yet.

Future Research

1. **Pricing of competitors:**

In order to recommend a better pricing strategy, we did some research about how competitors like Bird and Spin charge their customers. Lime's current pricing strategy is \$1 to unlock + \$0.36 per minute in San Diego. The per minute price varies among cities with an average of \$0.25 per minute, which is approximately the same with other electric scooter companies.

[Scooter ride is going to cost you a lot more](#), [Bird electric scooters price increase](#), [Lyft raises scooter prices to 0.26 per minute](#)

2. **Pricing strategy of other shared transportation like Uber:**

In order to recommend a better pricing strategy, we also researched how other shared transportation companies like Uber set their price. Uber used a basic formula for calculating price: Base Fare + (Cost per minute * time in ride) + (Cost per mile * ride distance) + Booking Fee = Your Fare, along with other factors like Tolls and Fees, Uber Surge Pricing, Uber Minimum Fare, Route based adjustments, rush hours, different types of cars, different cities, etc. To adapt the model to Lime electric scooters, we think it's reasonable to take into account both distance and time, as well as different cities.

Uber fare calculation - [\[1\]](#), [\[2\]](#)

3. **Lyft Partnership with UCSD:**

In order to get UCSD students a lower price and create more marketing opportunities for Lime, we researched about how Lyft partnered with UCSD. There are two major points in the partnership:

1. Unlock your first \$15 free ride credit when you set up your business profile and associate it with your @ucsd.edu email address. Then get \$5 in personal ride credit for every 5 rides of \$10 or more you take in business mode.
2. Students, staff and faculty can purchase Lyft FLEX Shared credits and receive a 20% bonus — \$60 worth of ride credit for just \$50. Better yet, with these Lyft Shared credits, you'll pay fares up to 60% less for agreeing to share your Lyft with another passenger.

We think these are great strategies to encourage more students to use this transportation means, and they help reduce the price as well. We think it's reasonable that Lime form a similar partnership with UCSD to help improving the usage.

[UCSD - Lyft](#), [Transportation alternatives to Lyft - UCSD](#), [Lyft and UCSD establish first university partnership](#)

4. **How electric scooter companies improve safety**

Lime has spent \$3million on rider safety education, and has given away 250,000 helmets for free. A lot of other electric scooters companies are also trying different methods to improve safety of this transportation means. Even though, there's still a long way to go.

[Bird gives free scooter rides](#), [Electric scooter companies getting serious about safety](#)

References

- On Campus Electric Scooters - [Source](#)
- College campuses struggle to accommodate electric scooters - [Source](#)
- How much do Lime Scooters cost? - [Source](#)
- How is my Uber fare calculated? - [Source](#)

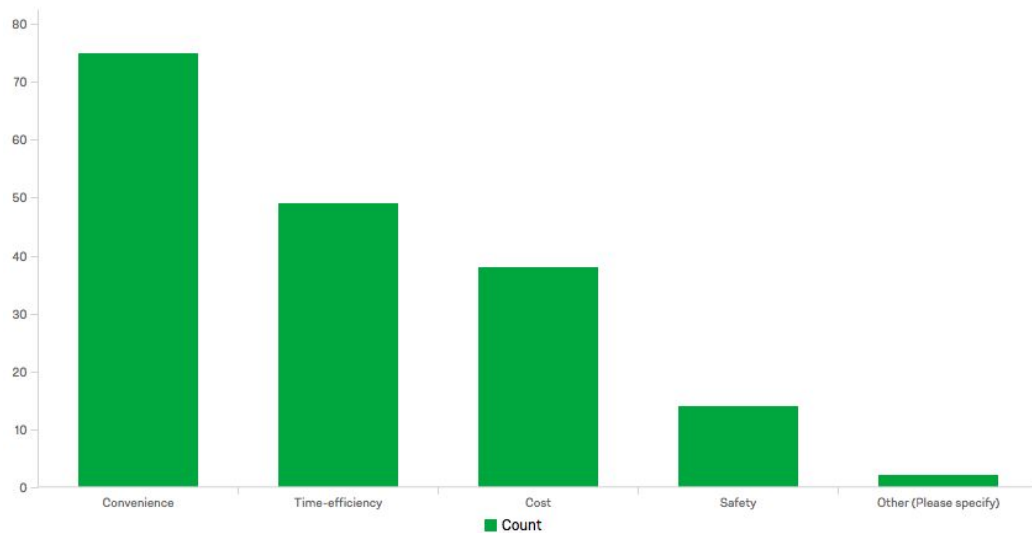
Appendix

Documents

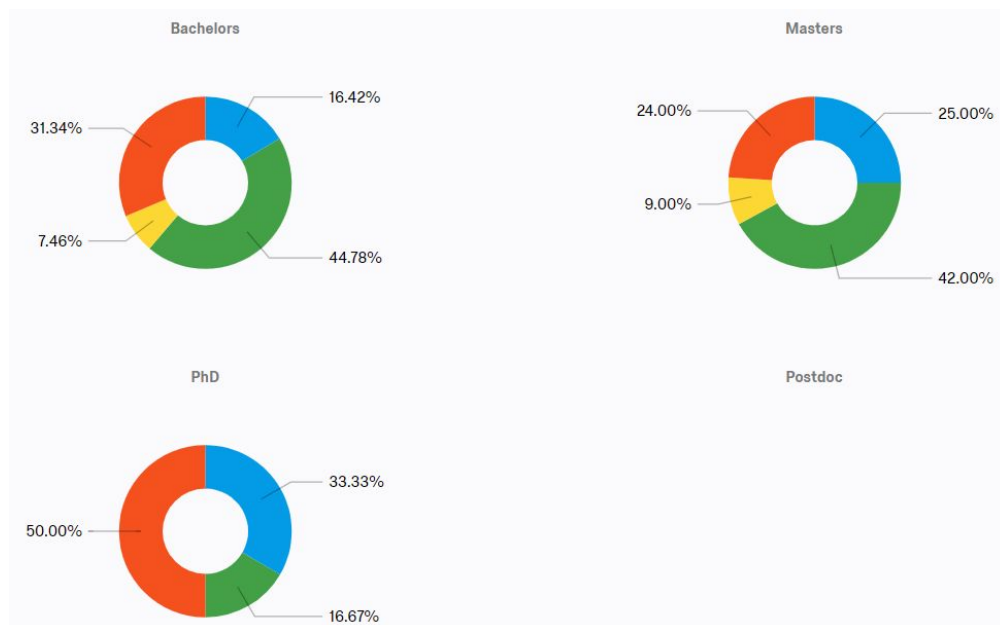
- Focus group summary - [PDF](#)
- Focus group questionnaire - [PDF](#)
- Survey Questionnaire - [PDF](#)

Figures

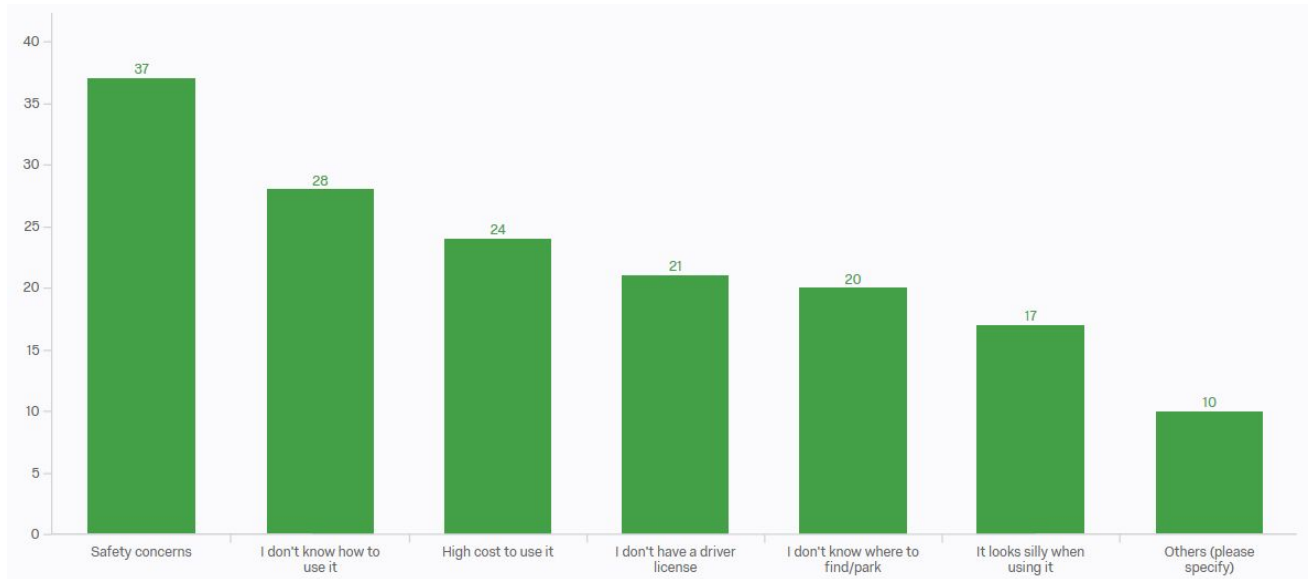
- Figure 1- People's concerns for all means of transportation



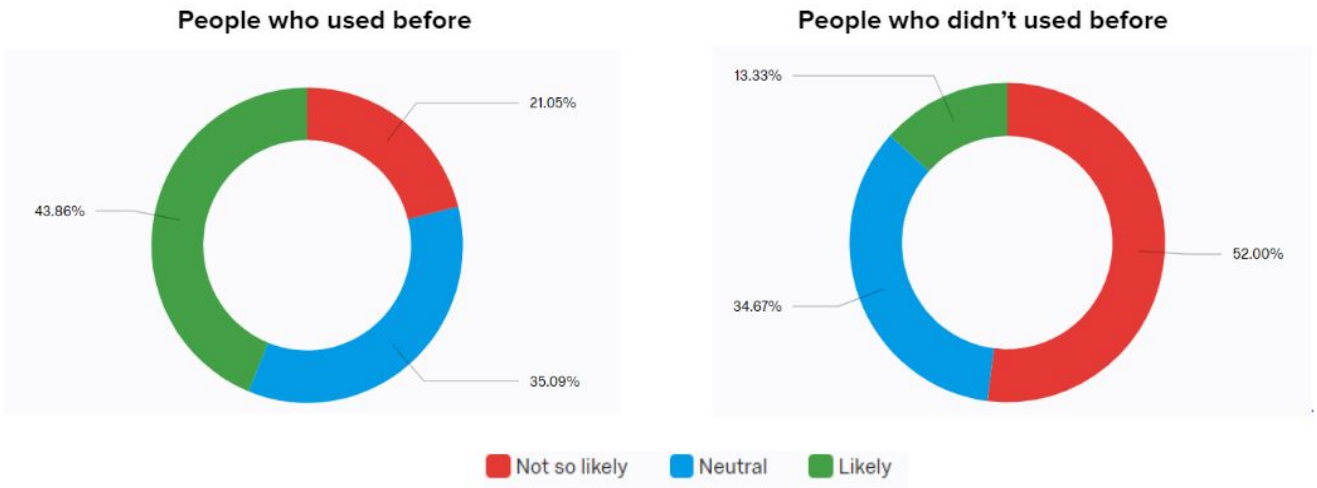
- Figure 2 - People's concerns of transportation (by study levels)



- Figure 3 - Why aren't they using it?



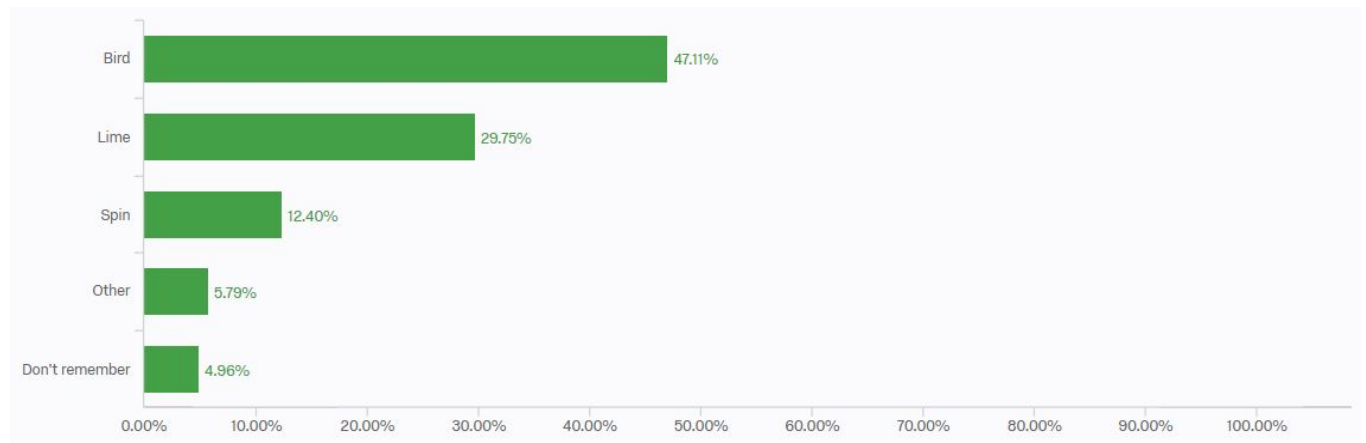
- Figure 4 - Willingness to try



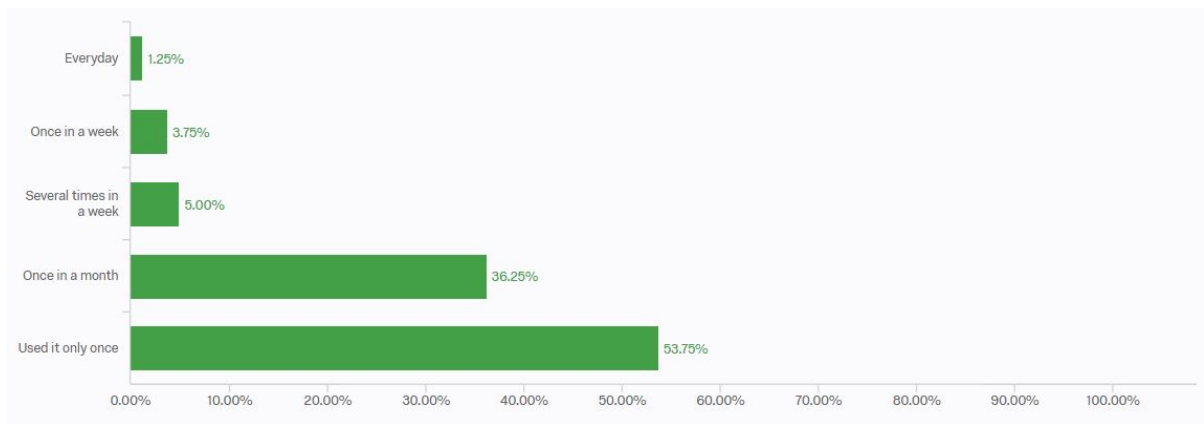
- Figure 5 - People's opinions about major features of electric scooters



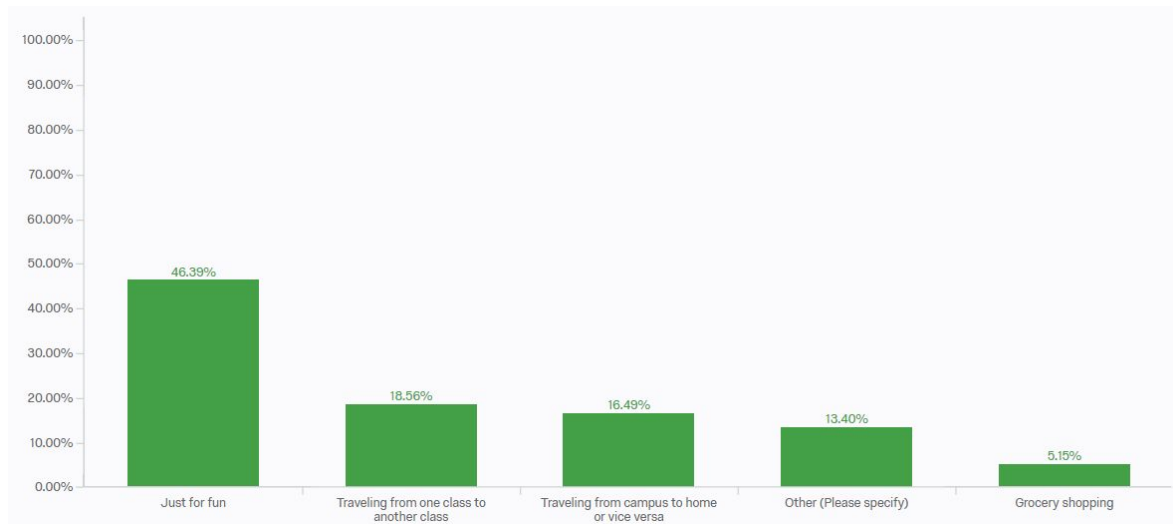
- Figure 6 - Market share



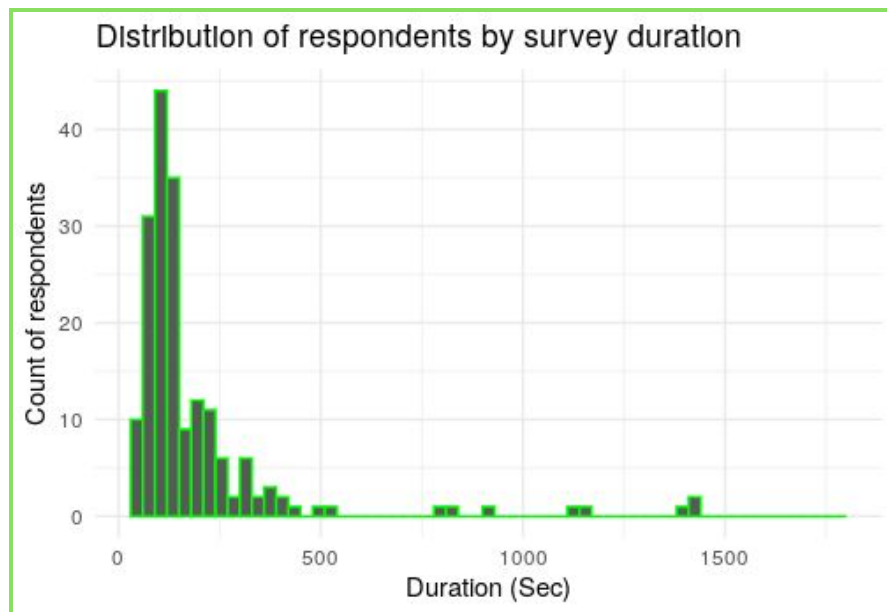
- Figure 7 - Frequency of usage



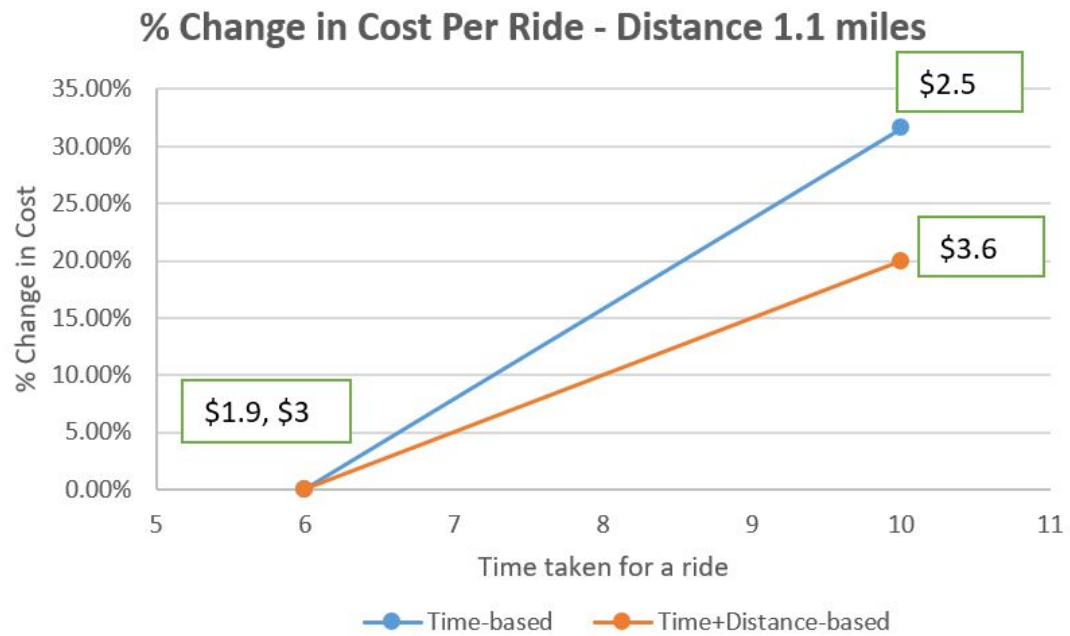
- Figure 8 - Purpose of usage



- Figure 9 - Distribution of survey duration



- Figure 10 - %Change in price for the same distance travelled



Tables

- Table 1 - Correlation between frequency of ride and purpose of ride

	Total	Grocery shopping	Just for fun	Other (Please specify)	Traveling from campus to home or vice versa	Traveling from one class to another class
Everyday	4.1%	20.0%	2.2%	0.0%	6.3%	5.6%
Once in a month	38.1%	20.0%	22.2%	69.2%	31.3%	66.7%
Once in a week	4.1%	0.0%	2.2%	7.7%	12.5%	0.0%
Several times in a week	5.2%	20.0%	0.0%	0.0%	12.5%	11.1%
Used it only once	48.5%	40.0%	73.3%	23.1%	37.5%	16.7%

- Table 2 - Statistical output for comparison of proportions

Pairwise proportion comparisons

Data : encourage_

Variables : encourage_metric, true_or_false

Level : FALSE in true_or_false

Confidence: 0.95

Adjustment: None

encourage_metric	FALSE	TRUE	p	n	n_missing	sd	se	me
clear_instructions	96	82	0.539	178	0	6.650	0.037	0.073
free_pass	76	102	0.427	178	0	6.599	0.037	0.073
personalized_ad	161	17	0.904	178	0	3.921	0.022	0.043
safety_equipment	117	61	0.657	178	0	6.332	0.036	0.070
some_friends	123	55	0.691	178	0	6.165	0.035	0.068

Null hyp.

clear_instructions = free_pass

clear_instructions = personalized_ad

clear_instructions = safety_equipment

clear_instructions = some_friends

free_pass = personalized_ad

free_pass = safety_equipment

free_pass = some_friends

personalized_ad = safety_equipment

personalized_ad = some_friends

safety_equipment = some_friends

Alt. hyp.

clear_instructions not equal to free_pass

clear_instructions not equal to personalized_ad

clear_instructions not equal to safety_equipment

clear_instructions not equal to some_friends

free_pass not equal to personalized_ad

free_pass not equal to safety_equipment

free_pass not equal to some_friends

personalized_ad not equal to safety_equipment

personalized_ad not equal to some_friends

safety_equipment not equal to some_friends

diff p.value

0.112 0.034 *

-0.365 < .001 ***

-0.118 0.023 *

-0.152 0.003 **

-0.478 < .001 ***

-0.230 < .001 ***

-0.264 < .001 ***

0.247 < .001 ***

0.213 < .001 ***

-0.034 0.497

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

- Table 3 - Sample calculation Cost-per-mile -

Assumptions: Cost per minute = \$0.15, Distance travelled = 1.1 miles, Avg. time to travel on Lime for 1.1 miles = 6 minutes, 10 minutes is another variant of time taken by a rider to travel the same distance of 1.1 miles.

				Price per ride	3
Variables					
Cost per mile	1				
Cost per minute	0.15				
Base price	1				
Constraints	LHS	Relation	RHS		
No. of miles	0	>=	0		
Price per ride	3	>=	2		
No. of miles - higher	0	<=	5		
Price per ride - higher	3	<=	3		
Cost per minute	0.15	=	0.15		
Base price	1	=	1		

- Table 4 - Percent change in cost-per-rider for the two pricing strategies

Minutes	Pricing	% Change	Cost per Rider (\$)
6	Time-based	0	1.9
10	Time-based	0.315789474	2.5
6	Time+Distance-base	0	3
10	Time+Distance-base	0.2	3.6