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"Excuse Me, I'm Sorry": The Effects of Apologies and Excuses for Mistakes

I. Introduction

We're all told that we shouldn't make excuses for when we don't perform up to par. Instead, we're taught that we should assess the situation, determine what went wrong, take responsibility for our own actions, and do better in the future. Is this always true, or is it sometimes beneficial to make excuses or apologies?

We designed an experiment to test whether excuses, apologies, or saying nothing is most effective when trying to correct mistakes. We had participants drink juice after it was delivered late to them. They either received an apology, an excuse, or no account as to why it was late. We also explored whether or not distracting a person has an impact on the effectiveness of an apology. Half of the participants were distracted while waiting for their juice, while the other half were not. We asked participants to fill out a survey, in which they were asked to tip the server based on the service received. We want to determine whether there are significant differences among the groups for the amount tipped. The results of our experiment and our findings will be able to help those who use apologies and excuses on a daily basis, such as those who are late to work. It will allow these people to make rational decisions on whether or not to apologize only, apologize and make an excuse, or nothing at all in daily interactions with others.

Our findings will also have larger policy implications for individuals, large companies, restaurants, and the government. For example, when Uber drivers are late when picking up customers, they often apologize for the delay. Our results will allow us to inform Uber drivers as to whether they should apologize only, apologize and make an excuse, or not apologize at all when they are late. In addition, our findings will enable us to advise Uber on whether they should distract customers when their rides are late, in an effort to appease them. These implications are also applicable in other fields such as customer service or in the food industry, where products are sometimes delivered late or incorrectly.

The following section summarizes existing literature. Section III describes the experimental design. The results of the experiment are found in section IV and discussed in section V. Section VI concludes.

II. Literature Review

One may question the purpose of apologizing, as an apology comes at no cost to the agent and thus should be disregarded by the principal. Abeler et al. addressed this idea of "cheap talk" in their 2009 paper *The Power of Apology*. The authors worked in conjunction with a German eBay website to conduct an experiment that tested the power of an apology relative to that of a monetary compensation. The subjects were customers who posted a negative review on the website. There were three customer groups in this experiment: (1) those who received an apology from eBay after posting a negative evaluation, (2) those who were offered a 2.50 euro compensation, and (3) those who received a 5 euro compensation. After performing an experiment to determine whether or not a company's apology would affect customers' subsequent behavior, Abeler et al. concluded that providing an apology produced better outcomes for the company than did providing a monetary compensation. This article is important because it takes a step toward settling the debate over whether or not an apology is simply "cheap talk." Considering that apologies are meaningful, one might ask if adding an excuse is beneficial.

While apologies and excuses are believed to assuage a person's reaction to an unfavorable outcome, it is important to draw the distinction between interpersonal and informational justice. Interpersonal justice means the assurance of people being treated politely and respectfully (e.g. apology), while informational justice involves the inclusion of actual content (e.g. excuse). The paper *"When Social accounts backfire: The exacerbating effects of a polite message or an apology on reactions to unfair outcome"* by Skarlicki et al. (2004) hypothesized that interpersonal justice accompanying a low-outcome offer in an ultimatum game might increase the retaliatory behaviors, rather than alleviating them (e.g., increase the likelihood of the victim rejecting the offer). Individuals might perceive that "talk is cheap," and the mere expression of assuaging remarks (e.g., politeness, apologies) might be seen as insincere and manipulative.

The results indicated that the participants were more retaliatory, even at a cost for themselves, when a low offer was accompanied by either polite or apologetic messages than when no account was provided. One interpretation of this result was that participants were more likely to believe that giving a low offer and apologizing was insincere or manipulative.

This paper contributes to the literature by teasing the distinct effect of the perceived insincerity of an apology or polite message when communications have no substantive content. It

also allows room for the investigation of the role and effects of substantive, informational content (excuses and explanations) on perception.

Weiner et al. (1987) in *An Attributional Analysis of Excuse Giving: Studies of a Naive Theory of Emotion* describe the process of determining which excuses to use when breaking a social contract. The paper expands on naive theories of emotion and their use in social interaction. Specifically, the authors conduct four studies that pertain to excuses given for a broken social contract. The results suggest that relative to external, uncontrollable reasons (e.g. "my car broke down"), internal and controllable excuses (e.g. "I did not want to go") augmented aversive emotional reactions, increased negative personality ratings, and resulted in a desire for no further contact with subjects. This allows us to generalize that poor excuses are internal, controllable, and at times, intentional, whereas good excuses are external, uncontrollable, and unintentional. This paper leaves room to utilize the theoretical framework presented to conduct further economic experiments. It may be beneficial to analyze which excuses can be perceived as internal or external and to determine if context impacts the effectiveness of an excuse.

In his 1996 paper, "*Forgive Me, I'm New": Three Experimental Demonstrations of the Effects of Attempts to Excuse Poor Performance*, Jerald Greenberg aims to determine whether or not there are certain situations in which making excuses helps or harms a person's cause. Specifically, he uses newness as the excuse (i.e. telling someone "forgive me, I'm new" after making a mistake). After conducting three experiments, Greenberg concludes that being new at something is beneficial when the person performs well, but detrimental when the person performs poorly and adversely affects the other party. More importantly, he concludes that if the person's performance does *not* adversely affect the other party, newness excuses are effective in eliciting higher performance evaluations for both good and poor performers.

This paper is important because it highlights the significance of context when deciding whether or not to use an excuse to explain a mistake; if you're a new hire at a company and incorrectly analyze the data for a project, you're better off owning up to your mistake and not giving an excuse for it. This paper also shows us that while people are generally empathetic towards others who are new, they ultimately prioritize their own well-being above all else. Hence, when someone adversely affects them, people become less empathetic and shift the blame onto the other person for being incompetent. One shortcoming of this paper is that it only examines excuses for failure due to internal reasons (e.g. being new), rather than external reasons (e.g. having a difficult task to do, having a bad day, etc.).

Our study, in turn, will build upon the ideas examined in the existing literature. Specifically, we will investigate the effectiveness of apologies and excuses for mistakes due to external causes. Moreover, we will see if the effectiveness of an apology or excuse for a mistake changes based on whether a person is distracted or not.

III. Experimental Design

Our experiment will determine whether apologies, excuses, or no account is best when compensating for mistakes. We will limit our experiment to uncontrollable, external excuses, given evidence that they are the most successful.

We recruited students in the Deece to participate in a "juice sampling test" for the experiment. They were told that it would take approximately 5 minutes of their time, during which they would drink our juice (strawberry lemonade) and fill out a survey afterwards, where they would have a chance to win a $60 cash prize. Once students agreed to participate, the experimenters brought them in pairs to the second floor of the Deece, where an actor was waiting. The actor randomly assigned participants (N=120) to receive one of three treatments. Each pair received the same treatment. In the first treatment (no apology or excuse), the actor waited 5 minutes to deliver the juice and made no apology or excuse for it being late. They said something along the lines of, *"Here's your juice. You can go downstairs and take the survey."* In the second treatment (apology only), the actor delivered the juice 5 minutes late and gave an apology, *"I'm so sorry this is late."* In the third treatment (apology + excuse), the actor delivered the juice 5 minutes late and gave an apology accompanied by an excuse, *"I'm so sorry this is late. I have a lot of other juice cups to prepare."* The experiment was administered in a double-blind fashion, where neither the participants nor the experimenters knew the which treatment the participants received; only the actor knew this information.

We also wanted to determine if being distracted while waiting for the juice would amplify or mitigate the effect of an apology and/or excuse. As such, half of the participants were randomly assigned to a distraction group, where they were asked to draw a picture of their favorite/an original juice and to give it a creative title. The other half of the participants were not given this task. Instead, they were asked to put their phones away and to not talk to the other participant they were with.

The chart below illustrates our 2x3 design.

	nothing	apology	apology + excuse
no distraction	n = 20	n = 20	n = 20
distraction	n = 20	n = 20	n = 20

N = 120

Once they received their juice, participants were asked to complete a short survey containing demographic information (race, gender, income level, class year, major) and the following questions:

1. On a scale of 1-10 (1=poor, 10=outstanding), how would you rate the quality of the juice?
2. On a scale of 1-10 (1=poor, 10=outstanding), how would you rate the quality of the service you received?
3. On a scale of 1-10, (1=poor, 10=outstanding), how would you rate the overall atmosphere?
4. The server work several hours over the course of the experiment but has not been paid. You have a chance of winning a $60 cash prize for participating in this experiment. Based on the service you received, how much would you tip the server? If you win, the amount you choose will be given to the server as gratuity.

   $0 $2.50 $5 $7.50 $10 $12.50 $15 $17.50 $20

We were only interested in the results of question 4; the other three questions are extraneous. We believe that the framing of this question properly incentivizes participants to answer honestly and to tip based on the quality of the service received. By prefacing it with, "The server will prepare and deliver juice over the course of the experiment but has not been paid," we hoped to induce a need/desire to give in the participants. We also presented a tangible benefit of participating in the experiment: winning a cash prize. But this benefit came with a cost. If they won, the amount they chose to tip was binding binding. Therefore, we believe that by providing a benefit, a cost, and a reason to feel the need to pay the server, subjects would be incentivized to tip the amount they thought the server deserved.

We will use the regression equation below to determine the effect of each treatment on the tip given. By including the distraction terms, we will also able to determine if the effects of the treatments varied when participants were distracted vs. not distracted.

$$\text{Tip} = \beta_0 + \beta_1(\text{apology}) + \beta_2(\text{excuse}) + \beta_3(\text{distraction}) + \beta_4(\text{distraction*apology}) + \beta_5(\text{distraction*excuse}) + \varepsilon$$

The variables *apology*, *excuse*, and *distraction* are dummy variables. *Apology* is equal to 1, if a participant is in the "apology" treatment group, or 0 if they aren't. *Excuse* is equal to 1, if a participant is in the "apology + excuse" treatment group, or 0 if they aren't. *Distraction* is equal to 1, if a participant is being distracted, or 0 if they aren't. The coefficients on the variables *apology* and *excuse* represent the effects of the corresponding treatment groups. The terms that include the distraction variable represent the effects of being distracted. We will compare this to the control condition (no account, no distraction), which is represented by the constant term, β_0.

We hypothesize that participants who are not distracted and receive the "apology" or "apology+excuse" treatments will give higher tips to the server, compared to the control group. This is because they are sitting around for a long time waiting for something to be delivered. Therefore, when they receive an apology or an excuse, they know that the server has recognized their mistake and is taking responsibility for it. In this case, an apology or excuse would be *better* than no account at all. On the other hand, we hypothesize that participants who are distracted and receive the "apology" or "apology+excuse" treatment would give lower tips to the server than participants in the control group. This is because their attention is being drawn to the delayed delivery when they might not otherwise have noticed or cared. In this case, an apology or excuse would be *worse* than no account at all.

Lastly, unexpected situations (such as when participants want to strike a conversation with an actor, e.g. asking why the juice is late after the actor apologizes even though they are in the "apology without excuse" treatment group, or participants refuse to turn off their phones) might be hard for us to control and tricky for the actor as well. Therefore, we developed scripting and guidelines for the actor on how to react in certain circumstances for the actor (s*ee appendix).*

IV. Results

Table 1 below reports the regression results of the effects of individual treatments as well as

interactions between distraction and treatments, based on the sample of 120 participants, unadjusted for demographic variables.

Table 1: Main Regression

VARIABLES	(1) tip
apology	4.125**
	(1.771)
excuse	-3.750**
	(1.752)
distraction	2.125
	(1.648)
distract*apology	-2.375
	(2.638)
distract*excuse	3
	(2.711)
Constant	6.125***
	(1.018)
Observations	120
R-squared	0.075

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The coefficient of the constant term indicates how much participants who were not distracted and received no apology or excuse (control group) tipped on average. As for the main effect terms (e.g. apology, excuse, and distraction), the point estimates reported tell us the difference in tip given by the participants in each treatment group relative to the control group. In this first model, effects of the apology treatment and the excuse treatment were found to be statistically significant at the 5% level. More specifically, the treatment of apology in the non-distracted group is associated with a 4.125-dollar increase in the average tip given, and the provision of an excuse in the non-distracted group is associated with a 3.75-dollar decrease in the average tip given. These results are consistent with results by Abeler et al. (2009) in that apologies are meaningful and potentially beneficial in changing reviews by customers who are negatively affected, as well as by Greenberg (1996) results, in that excuses could be detrimental if a person performs their task poorly and adversely affect the rater/customer. The effects of the treatment of distraction, however, was found to be inconsequential, both when administered alone, and together with an apology or excuse, as

suggested by the statistically insignificant interaction terms. Hence, this result is inconsistent with our hypothesis regarding the potential benefits of distraction when the participants are adversely affected.

Table 2 below reports the similar regression results to table 1 on the same sample, adjusted for demographic variables including race, gender, major division, and family income level.

Table 2: Regression with Controls:

VARIABLES	(1) tip
apology	4.340**
	(1.797)
excuse	-3.323*
	(1.931)
distraction	3.164*
	(1.725)
distract*apology	-3.352
	(2.768)
distract*excuse	2.625
	(2.753)
Constant	7.387***
	(2.268)
Controls	Yes
Observations	120
R-squared	0.132

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The coefficient on the constant term indicates how much participants in the control group tipped on average, regardless of race, gender, major, and family income level. In this second model, statistically significant effects of the apology treatment and the excuse treatment were found to be in the same direction as the results in Table 1. Quantitatively, the sole treatment of apology in the non-distracted group is associated with a 4.34-dollar increase in the average amount of tip given, while the treatment of excuse in the non-distracted group is associated with a 3.323-dollar decrease in the average amount of tip given, accounting for race, gender, major, and family income. In addition, distraction was also meaningful in explaining the variability in tip amount. More specifically, the sole

treatment of distraction (without apology nor excuse) is associated with an increase of 3.164 dollars in the average tip amount given, adjusted for the demographic covariates above. This is consistent with our initial hypothesis, as distraction was suggested to help alleviate the effect of the perception of being adversely affected in the participants. However, it is also important to note that the treatment of distraction with an apology resulted in a 4.152-dollar increase in the average amount of tip given, which is found by summing the coefficients on *apology*, *distraction*, and *distract*apology*.. This is inconsistent with our initial hypothesis, as we believed an apology would remind the participants of the fact that they were adversely affected and thus negatively affects the amount of tip. On the other hand, the interaction terms between distraction and excuse as well as apology were not statistically significant which is inconsistent with our hypothesis regarding the potential benefits of distraction when the participants are adversely affected. The effects of apology and excuse on the average amount of tip are not suggested to be different between the distracted and non-distracted, provided that all participants are adversely affected, regardless of their race, gender, major, and family income.

V. Discussion

Our main results indicate that in situations when people are not distracted, an apology is effective when trying to correct a mistake, while an excuse is not. We find that for those participants who *were not* distracted, receiving an apology was beneficial and resulted in higher amounts of tip given than those who did not receive any form of an apology or excuse. Moreover, for those who *were not* distracted and received an excuse *in addition* to an apology, a relatively lower amount of tip was given. These results are statistically significant at the 5% level. For those who *were* distracted, receiving no apology or excuse resulted in a *higher* amount of tip given. This is statistically significant at the 10% level. Initially, one might think this suggests that saying nothing is superior to an apology or excuse when the other person is distracted. However, looking more closely at the data, we find that it is best to apologize for a mistake when the other party is distracted. Thus, these results show that regardless of whether people are distracted or not, an apology is most effective to compensate for mistakes.

Our findings have widespread policy implications. With regards to Uber, our results suggest that if the driver is running late, they should simply apologize to the passenger, rather than making excuses as to why they were late. Alternatively, if rides are late, Uber could offer customers a free game to play as a distraction while they wait. Based on our results, Uber wouldn't lose customers,

and drivers may even receive higher ratings if the company implements this distraction game. Our findings also shed light on how restaurants should operate when their service is slow or a customer's order is delivered incorrectly. In most instances, people are generally nice and understanding when their order is late or delivered incorrectly, and the server gives a simple apology for it. However, if the server starts making lots of excuses about why this occurred, people become annoyed and even angry, resulting in lower tips. Many restaurants also have kids menus with games and puzzles that distract them. Based on our findings, we recommend that restaurants create similar distractions for adults, especially if they're busy or anticipate slower service, and servers should apologize for the delay. Lastly, our findings suggest that when running late to work or to an appointment, it is best to give a simple apology to your boss or whoever it is you're meeting with, rather than making excuses.

There are several limitations and improvements that could be made to our design. First, increasing our sample size and including non-Vassar students would yield more accurate results and provide more external validity. However, given the time constraints we had, we believe that 120 participants is sufficient to draw conclusions about our findings. Secondly, the data for the last 24 observations were collected after the end of classes, whereas the first 96 participants were recruited before the end of classes. This could create a "time effect," where people might tip more generously after classes are over, perhaps due to decreased stress levels. Furthermore, since we brought people up in pairs and recruited participants in the Deece, many of the pairs knew each other, which creates a confound. If people know each other, then the distraction task might be more enjoyable for them, or putting their phones away and not talking to each other would be less enjoyable for them, compared to two people who do not know each other. This "familiarity effect" might have affected how much tip participants gave to the server. Ideally, we would bring pairs who don't know each other, but this was less feasible for our experiment, due to our recruitment procedure and time constraints. Moreover, we were unable to recruit a second actor to ensure that people in the "no distraction" groups put their phones away and didn't talk to each other. Therefore, we don't know if participants followed the server's instructions.

If we were to repeat this experiment, we would try to eliminate some of the "weirdness" factor. Some participants were confused and wondered why they were being asked to taste juice and to answer questions about the "overall atmosphere" of the experiment. Due to the nature of our experiment, it was difficult to strike a balance between setting participants' expectations of how much time the experiment would take and not deceiving them. We told participants the experiment would take "around 5 minutes," but it took an average of 8-9 minutes per pair. We wanted to set a

time benchmark so that they could sense it was being violated (juice was late). The entire experiment, from bringing them upstairs to them completing the survey, took longer. This might have created confounding effects, especially if people became annoyed or were late to class, so they may have tipped less than they ordinarily would. On that note, we would try to use a more efficient method in the future, perhaps conducting the experiment in a space with more than one room, so that multiple treatments could be administered simultaneously. Lastly, we cannot be certain that the tip was a true measure of service quality. Some people have fixed tipping rules that they follow (e.g. 15 or 20%), regardless of service quality. The tip might also be a measure of altruism, spite, inequity aversion, or another factor not related to service quality. Hence, we cannot be sure that people tipped the amount they truly believed the server deserved.

VI. Conclusion

Apologies, if given too often and at the wrong time, can often be seen as cheap talk and unproductive. Similarly, excuses are seen as futile attempts to mitigate blame by putting forward a reason or explanation to defend said offense. We are told that we shouldn't make excuses for when we fail to meet expectations and should instead take responsibility for our actions and do better in the future. The results of this paper illustrate the relative effectiveness of apologies and ineffectiveness of excuses when correcting mistakes.

The findings of this paper can help to explain a myriad of human behaviors in different contexts and provide a variety of policy implications. The implications can range from deciding whether or not to apologize or make an excuse in interpersonal and daily interactions with people surrounding us, to whether or not politicians or large companies should use apologies or excuses to compensate for their mistakes and if that will result in higher or lower approval ratings by the masses.

For future research, testing to see if certain mechanisms will amplify or dampen the observed effects of an apology and/or excuse would be a worthwhile pursuit. For example, it would be interesting to explore whether or not excuses and apologies are effective based on status or social rank (e.g. a manager vs. an entry-level employee giving the same apology/excuse). We could also see if the credibility or reputation of the individual/company giving the apology/excuse impacts its effectiveness (e.g. a new vs. an established company). Finally, we could determine if the quantity and quality of one's previous excuses and apologies affect how well people receive their future excuses and apologies.

Appendix

Treatment/ Control Groups

6 treatment/control groups in total:

1. *No distraction - Control (no apology/excuse)*
2. *No distraction - Apology only*
3. *No distraction - Apology + Excuse*
4. *Distraction - Control (no apology/excuse)*
5. *Distraction - Apology only*
6. *Distraction - Apology + Excuse*

Conditions & Script For Each Group

1. ***No distraction - Control (no apology/excuse)***

"Welcome. Just wait here and I'll be back with your juice. I ask that you please put your phones away and refrain from speaking to each other while you wait."

Go back upstairs, wait 5 minutes, then come back down to deliver. Say, "Here you are. You can head back downstairs to fill out the survey." As they leave, go back in the staircase and wait for the next participants.

2. ***No distraction - Apology only***

"Welcome. Just wait here and I'll be back with your juice. I ask that you please put your phones away and refrain from speaking to each other while you wait."

Go back upstairs, wait 5 minutes, then come back down to deliver. Say, "Here you are. **I'm so sorry this is late.** You can head back downstairs to fill out the survey." As they leave, go back in the staircase and wait for the next participants.

3. ***No distraction - Apology + Excuse***

"Welcome. Just wait here and I'll be back with your juice. I ask that you please put your phones away and refrain from speaking to each other while you wait."

Go back upstairs, wait 5 minutes, then come back down to deliver. Say, "Here you are. **I'm so sorry this is late. I have a lot of cups of juice to prepare.** You can head back downstairs to fill out the survey." As they leave, go back in the staircase and wait for the next participants.

4. ***Distraction - Control (no apology/excuse)***

"Welcome. I'll be delivering your juice, but while you're waiting, I have a little task for you. Here's some paper and pens. Your task is to create your own juice flavor that you could sell in a store and give it a name. Have fun, and I'll be back. "

Go back upstairs, wait 5 minutes, then come back down to deliver. Say, "Here you are. You can head back downstairs to fill out the survey." As they leave, go back in the staircase and wait for the next participants.

5. ***Distraction - Apology Only***

"Welcome. I'll be delivering your juice, but while you're waiting, I have a little task for you. Here's some paper and pens. Your task is to create your own juice flavor that you could sell in a store and give it a name. Have fun, and I'll be back. "

Go back upstairs, wait 5 minutes, then come back down to deliver. Say, "Here you are. **I'm so sorry this is late.** You can head back downstairs to fill out the survey." As they leave, go back in the staircase and wait for the next participants.

6. ***Distraction - Apology + Excuse***

"Welcome. I'll be delivering your juice, but while you're waiting, I have a little task for you. Here's some paper and pens. Your task is to create your own juice flavor that you could sell in a store and give it a name. Have fun, and I'll be back. "

Go back upstairs, wait 5 minutes, then come back down to deliver. Say, "Here you are. **I'm so sorry this is late. I have a lot of cups of juice to prepare.** You can head back downstairs to fill out the survey." As they leave, go back in the staircase and wait for the next participants.

**ESPECIALLY AFTER YOU DELIVER, DO NOT SAY ANYTHING ALONG THE LINES OF:

"Thank you for waiting."
"Thank you for your patience."
"I hope you like the juice."
"Ooh, I like your juice name. Very creative." (no comments for distraction group's ideas)
"Oh, that was just a distraction." to the distraction group

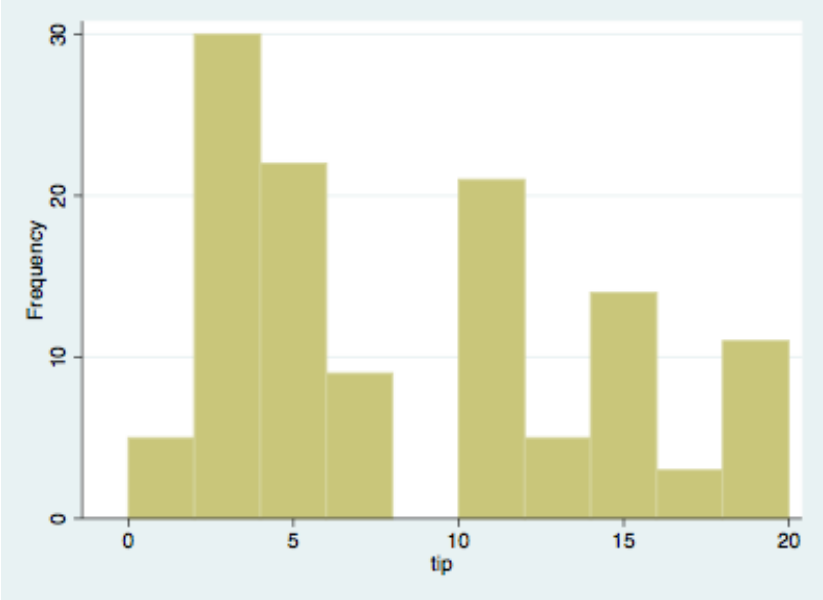
Summary Statistics:

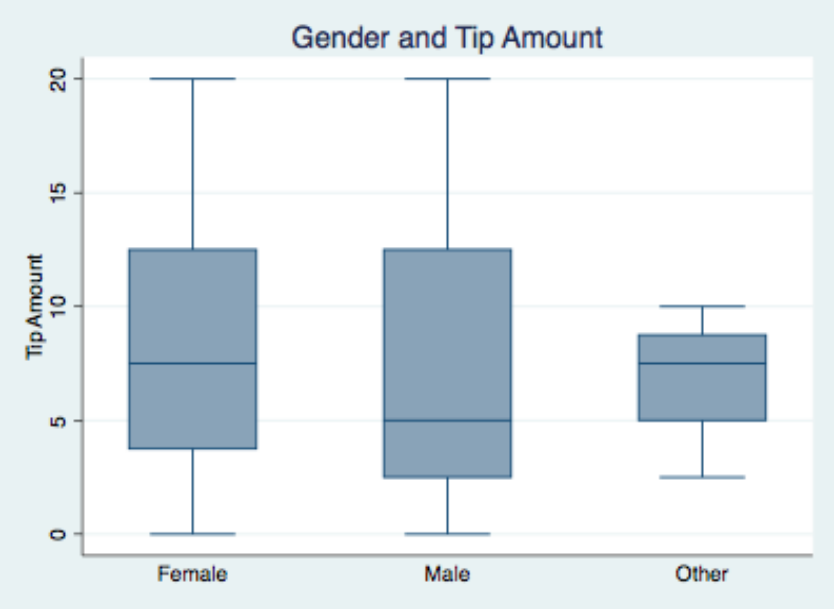
Tip Amount
Observations: 120
Mean: 8.395
Std. Dev: 5.894
Min: 0
Max: 20

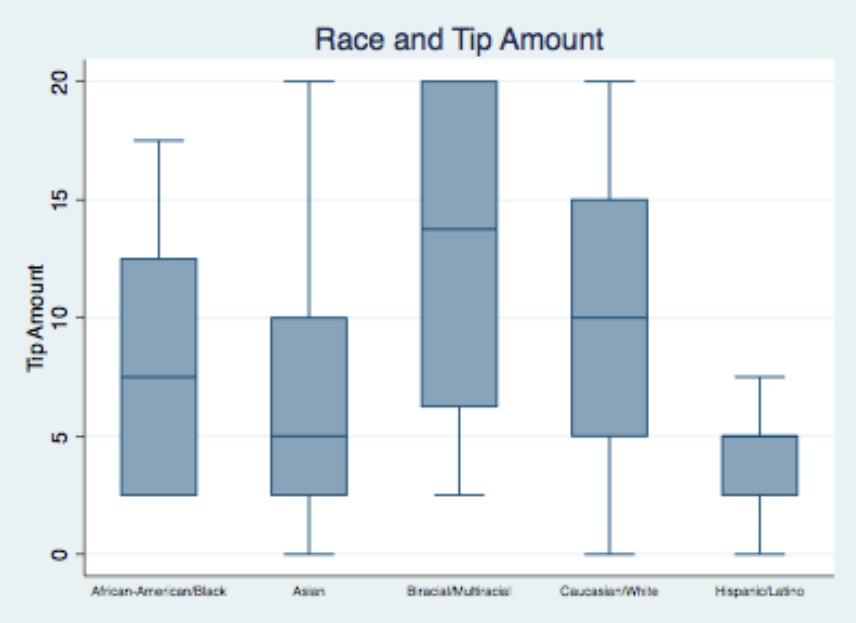
Table 1. Sample Demographics *(n=120)*

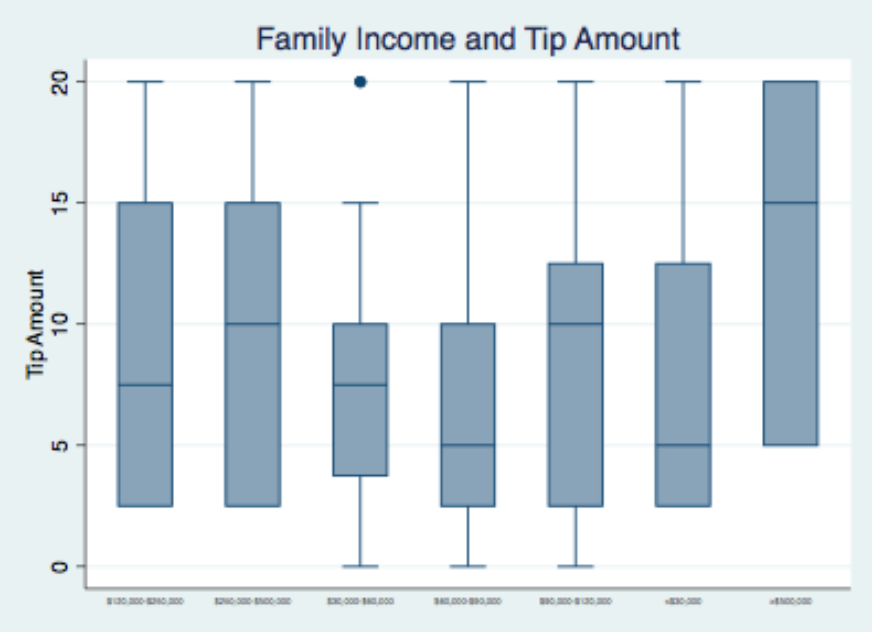
Variable	Frequency	Percentage	Mean Tip Given ($)
Gender:			
Female	64	53.33	8.67
Male	52	43.33	8.17
Other	4	3.33	6.875
Race:			
African American/ Black	18	15	8.33
Asian	38	31.67	7.10
Biracial/Multiracial	8	6.67	12.81
Caucasian/White	45	37.50	9.83
Hispanic/Latino	11	9.17	3.86
Family Income:			
<$30,000	19	15.83	8.03
$30,000-$60,000	24	20.00	8.02
$60,000-$90,000	19	15.83	7.24
$90,000-$120,000	23	19.17	8.91
$120,000-$250,000	14	11.67	9.11
$250,000-$500,000	18	15.00	8.47
>$500,000	3	2.50	13.33
Major:			
Arts and Languages	18	15	8.75
Double Major	20	16.67	9
Natural Science	45	37.50	8.22
Social Science & Hum	22	18.33	9.09
Undeclared	15	12.50	6.67
Class Year:			
Freshman (2021)	30	30.83	7.92
Sophomore (2020)	21	26.67	8.33
Junior (2019)	32	17.50	9.29
Senior (2018)	37	25.00	8.04

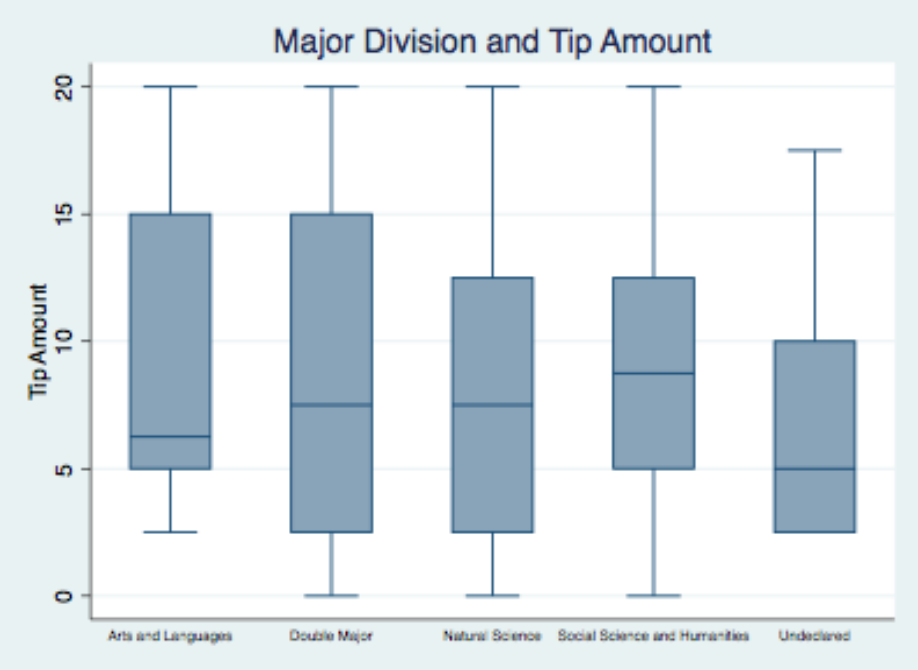
Frequency of Tips Amounts:

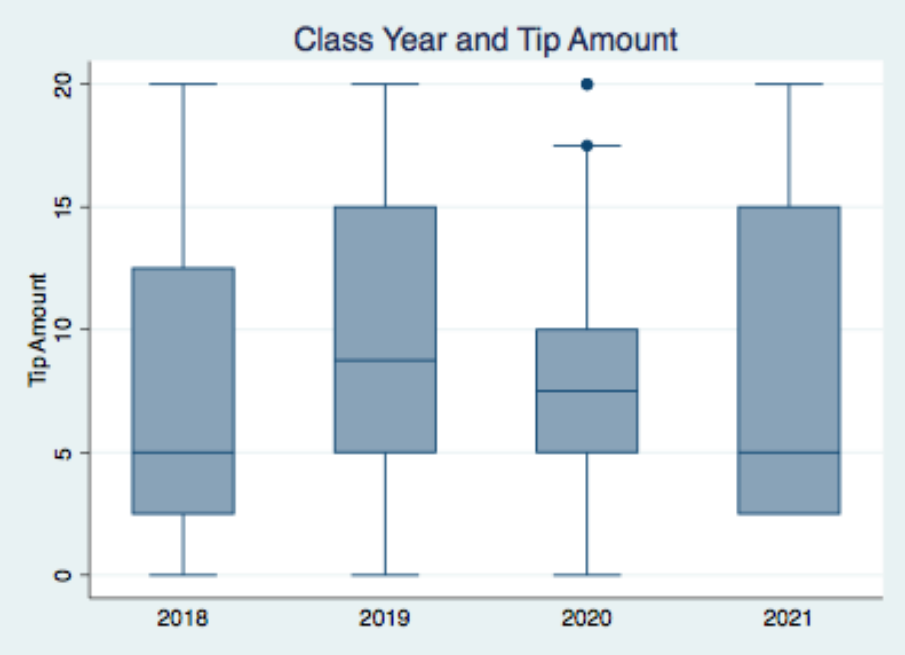

Frequency
0
10
20
30
0
5
10
15
20
tip

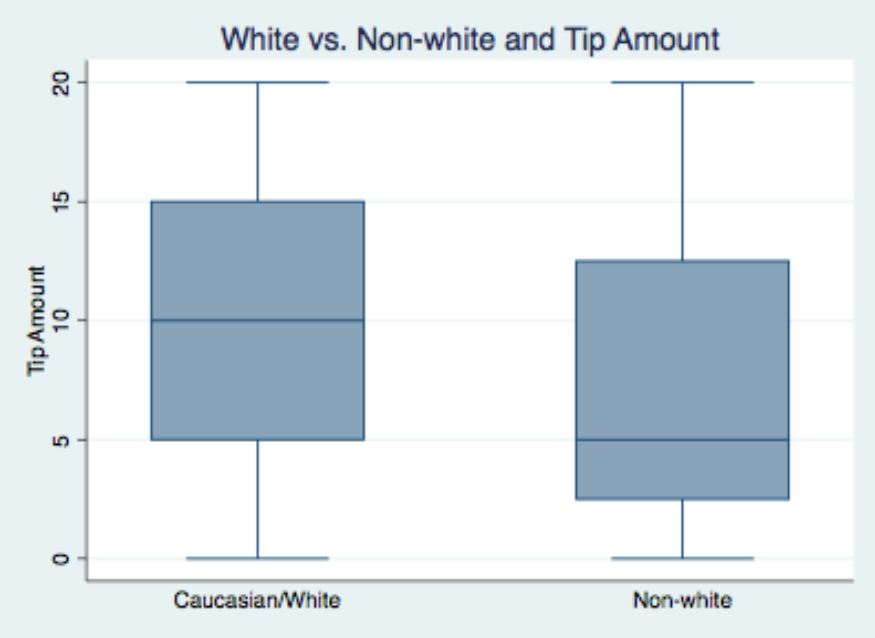

Gender and Tip Amount
Tip Amount
0
5
10
15
20
Female
Male
Other


Race and Tip Amount
Tip Amount
0
5
10
15
20
African-American/Black
Asian
Biracial/Multiracial
Caucasian/White
Hispanic/Latino


Family Income and Tip Amount
Tip Amount
0
5
10
15
20


Major Division and Tip Amount
Tip Amount
0
5
10
15
20
Arts and Languages
Double Major
Natural Science
Social Science and Humanities
Undeclared


Class Year and Tip Amount
Tip Amount
0
5
10
15
20
2018
2019
2020
2021



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