THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

DIVISION OF ENGINEERING, BUSINESS, AND COMPUTING

GIG-ECONOMY INVESTIGATION: A STUDY OF RIDE-SHARING PERCEPTIONS AND USER EXPERIENCES

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requirements for a baccalaureate degree in Business
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ABSTRACT

Ride-sharing has attracted great attention in the past five years and is one of many available transportation options. This study investigates perceived usefulness, ease of use, and risk as determinants of technology acceptance in the ride-sharing market. An important feature of the study is its attention towards non-users as well as the experiences of users. Understanding the determinants of passengers' and drivers' intentions to use ride-sharing is critical to promoting and adapting the service. Contrary to expectations, the results of this study indicate perceived usefulness and ease of use have no statistically significant effect on intention to use ride-sharing services. Perceived, risk however, does seem to be a significant determinant of ride-sharing application adoption. Based on the results of this study, implications for businesses and suggestions for further research are provided.

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Chapter 1

Introduction

Ever since I was a freshman in college, I was fascinated by Uber's revolutionary value proposition and their utilization of freelance drivers in the gig-economy. Gig-economy is a "buzzword" for a market that harnesses an environment where individuals engage in temporary work in various industries like transportation, construction, and information technology (Brown, 2017.). Almost every entry level business course I took mentioned gig-economy in a lecture, a case study, or in a text book. The gig-economy is often described as an economy based on companies that hire freelance workers who are not tied to the traditional workplace (Brown, 2017.). As a business student, I became curious as to why there was so much attention on this sector.

My curiosity grew, which led me to investigate how I might be able to leverage freelance work to address issues in the surrounding community. Through my own customer discovery research, I learned that there is a challenge for hospitals in Pennsylvania to provide limited English proficiency (LEP) patients with quality medical interpretation. Therefore, I developed a business model and co-founded a start-up company that uses technology to connect medically certified freelance language interpreters to medical professionals and patients through a mobile application. I highlight my involvement in creating a business based on contracted language interpretation because it directly relates to my thesis topic. While developing the mobile application and studying the gig-economy market, I quickly noticed that there may be a gap between what freelance interpreters want from the company and what is offered to encourage contractor usage, a common challenge for companies operating within the gig-economy (Brown, 2017).

When it came time to choose a topic for my honors research, understanding the significance of gig-economy came to the forefront of my proposal. I realized there may be determinants of user acceptance that I should investigate before launching. Even though I performed a customer discovery analysis and spoke to potential users of the application, I could not collect tangible data since my mobile application had no external users. I read many articles and viewed countless commentary regarding societal opinions on freelance work and I found there are elements of perception that contribute to consumers' and freelancers' intention to use sharing economy mobile applications, including usefulness, ease of use, and risk. While reading Wang's et al. (2018) study on Chinese consumers' intention to use ride-sharing services, a research gap became apparent between intention to use and actual behavior. To fill the gap, my study focuses on an investigation of ride-sharing perceptions compared to user experiences in the United States.

The results of this research study suggest there are potential benefits relating to ride-sharing companies such as Uber and Lyft and other firms relying on freelance labor. The findings can help businesses to address negative perceptions associated with usefulness, ease of use, and risk that may deter individuals from using the service as passengers or contracted drivers. The results from this research can provide companies, including my start-up, with insights as to how to adjust their contracted workers' and consumers' experiences.

This thesis's literature focuses on perception and acceptance, consumer intention on using technologies, and the methodology process of collecting data relating to perception versus actual experience. Following the literature review, I discuss the methodology used in this study to collect perception and acceptance data from individuals who have either used or not used ride-sharing services. The methodology maintains compliance of ethical and regulatory research

standards set by the Pennsylvania State University Institutional Review Board (IRB). Immediately following the explanation of methodology, processes used to analyze the results and implications of the data are outlined. The paper concludes with a discussion of findings, relevance, study limitations, and future applications of the results for businesses looking to utilize the freelance model.

Chapter 2

Literature Review

Introduction

After having reviewed existing literature on the topic of technology acceptance, a research gap became apparent. Many studies discuss relationships, determinants, and perceptions of various technologies such as social media (Romero et al., 2014.), smartphone applications (Noh et al., 2015), and ride-sharing services in China (Wang et al., 2018). However, few studies analyze perceptions while also collecting experiential data from drivers and passengers of ride-sharing services in the United States. Additionally, few researchers have investigated the determinants of consumers' and drivers' intentions to use ride-sharing services such as Uber and Lyft in the context of actual use behavior.

The literature review focuses on two broad themes: technology acceptance and ride sharing. The first section discusses technology acceptance with respect to perceived ease of use, usefulness, and risk; population differences; the data collection methodologies which informed this study; and conclusions of existing technology acceptance research across a range of technologies and services. The second part provides a brief review of definitions, an overview of the gig-economy, and a general summary on ride-sharing, including its origins and statistics.

Overview of Perception and Acceptance of Technologies

To understand the technology acceptance research framework, it is important to trace the origins of the technology acceptance model (TAM). TAM is a frequently used framework to understand the level of an individual's acceptance of new and innovative technologies (Legris et al., 2003). The TAM model explores alternative variables as determinants of adoption. Initially, the role of perceived ease of use and usefulness in consumer behavior was established by Schultz

and Slevin (1975). Focusing on management information systems, they developed a measure of consumer attitudes, a precursor of consumer perceptions and actual usage research. Building on Schultz and Slevin, Robey (1979) found that attitudes are more strongly related to actual usage than perceived worth. Their research suggests technology adoption is based on users' beliefs about the value certain technologies add in the workplace, suggesting perceived usefulness is a determinant of user behavior.

The foundation of more current models of technology acceptance was established by Davis (1989). In the context of email software, Davis explores the factors associated with acceptance or rejection of technology relative to perceived usefulness and an additional variable, perceived ease of use. He defined ease of use as the degree to which a person believes that using technology systems would be effort free. Davis's research expanded our understanding of the determinants of consumer action by showing that perceived ease of use is positively associated with email technology adoption, further validating the theoretical importance of TAM.

Davis's (1989) work is in two parts. Data from each investigation was used to assess the relationship between usefulness, ease of use, and self-reported technology adaption. In the field study, 120 users within IBM Canada's Toronto Development Laboratory were asked to rate the ease of use of two technology systems: PROFS electric mail and the XEDIT file editor in a questionnaire. The perceived ease of use variables included levels of confusion, errors, frustration, dependence, effort, controllability, understanding, and memory.

The subsequent lab study involved 40 participants who were asked to evaluate the usefulness of two IBM PC-based graphics systems. In both cases, Davis found usefulness was significantly more linked to usage than ease of use, which suggests that if users perceive the technology to be useful in their everyday lives, they may be more willing to accept it even if it is

difficult to use. Thus, perceived ease of use and perceived usefulness are often proposed as fundamental factors in consumers' attitudes and intention to use new technologies (Wang at al. 2018).

One innovation that has famously enhanced the way people use technology is social media (Brown, 2017). Romero et al. (2014) define social media as an online application allowing peer-to-peer communication, interaction, creation, review, editing, and dissemination of user-generated content, which is commonly referred to as Web 2.0. In their study of social media in the retail sector, TAM is used to measure acceptance. The authors hypothesized that attitudes toward Web 2.0 tools are positively and significantly related to the intention to use, ease of use, and attitude towards social media applications. Studying marketing managers in the Spanish retail sector, 250 participants from 90 companies using Web 2.0 tools were asked, through an online questionnaire, to answer specific questions on their perceptions of social media's ease of use. They found 36% of surveyed marketing managers did not worry about the organization's IT policies and use the technologies needed for work without complaints. The study also found that the perception of most managers is that the adoption of social media as part of their marketing strategy will yield many advantages based on the apps' usefulness (Romero et al. 2014). They also noted that the managers for the most part already used social media privately, possibly contributing to their positions on ease of use and technology adoption. The results reveal it is possible to extend the technology acceptance model to explain why people adopt new technologies such as social media and Web 2.0 applications as a business tool, thus confirming that similar methodologies could work in the study of ride-sharing or other technology-enhanced business sectors.

For example, an emerging innovation in grocery retailers is the use of electronic shelf labels (ESL). This new technology challenges the pricing strategies of traditional brick-and-mortar supermarkets by allowing for reduced price adjustment costs and fewer errors due to outdated prices (Garaus et al. 2016). ESL allows retailers to adjust prices instantly using automatic procedures and e-paper displays mounted directly on shelves. Like online retail, ESL enables brick and mortar stores to display product description, price, barcode information, unit pricing, and country of origin, providing customers with more visual options (Loebbecke, 2007). Garaus's et al. (2016) focus on a variety of scales and theories of interest, including technology acceptance and inferences on perceptions. The authors conclude ESL technology is easier for consumers to use than traditional price tags and that they enhance price information prominence (Garaus et al. 2016). The researchers also suggest ESLs positively influence product quality and store image perceptions, but not price fairness perceptions or usefulness, compared to traditional price tags (Garaus et al. 2016). The positive correlation between ease of use and usefulness of ESLs on consumer quality inferences leads to similar questions about ride-sharing perceptions..

Mobile banking applications represent another area of technology acceptance research. Mobile banking is a relatively new technology that has led to the success of application-based services and transactions within the gig-economy (Brown, 2017). Noh et al. (2016) sought to determine whether the quality of mobile banking applications exceeds a customer's expectations is positively associated with technology adoption. They investigated whether high system quality, high information quality, and high service quality have positive effects on customers' intention to engage in mobile banking. One unique element to this study was the addition of trust as a metric between quality and intention to use. Of the 788 Korean mobile apps-based banking users contacted, 541 agreed to participate, and, after finalizing the data, 520 were considered

valid. The survey used a seven-point Likert scale ranging from “strongly disagree” to “strongly agree” to determine consumer intentions. The results show that intention to use mobile banking applications is positively associated with information and service quality. Additionally, they find attitudes towards mobile banking applications are positively affected by economic benefits and user friendliness. Although previous studies have suggested system quality is an essential factor determining intention to use new technologies, this study reports the opposite. The authors explain that the inconsistent results are due to the ubiquity of mobile technology inconsistencies, such as variability among mobile service providers and poor wi-fi connections. Some of the limitations highlighted in the study were that the researchers only collected data in South Korea and focused on intention rather than actual behavior. They indicated further research considering consumers’ experiences with mobile app-based banking is needed. Their study suggests a similar need likely exists in the context of ride-sharing.

Overview of Ride-Sharing

Before examining ride-sharing itself, it is necessary to briefly explain its origins in the context of the gig-economy. One consequence of the technology revolution, including the proliferation of smartphone use, was the establishment and increasing phenomenon known as the gig-movement (Brown, 2017). The gig-movement is supported by websites and mobile applications that help match freelance workers with clients. Some jobs may be brief, such as a one-day babysitting request, or they can be much longer, such as a data managing project. An apparent byproduct of the late 2000’s recession and high unemployment levels in the United States was the increase in available labor necessary to support the gig-economy (Greenwood et al. 2017).

Months before the great recession hit the United States, Apple introduced the first iPhone in June 2007. This was a period in which many Millennials (Generation Y) attempted to enter the workforce. Smartphones provided the unemployed a platform to find work or create it themselves. Examples of this form of economic activity include many mobile applications and websites such as Airbnb (home rentals), Grubhub (take out), Freelancer (web designers), and Rover (dog care). With the regular emergence of new companies in the app store, freelance employment increased by 60% from 1997 to 2014, partially because Millennials gravitated to more temporary positions than previous generations (Brown, 2017). Of the vast offerings within the gig-economy, ride-sharing applications, specifically Uber and Lyft have captured a significant amount of attention and strong concentrations of usage, particularly in urban areas, since their inception in 2009 and 2012, respectively.

Ride-sharing refers to transportation of individuals with similar schedules and destinations. These co-riders travel in the same car to reach their place of work, school, store, or other desired location. In theory, Ride-Sharing refers to transportation in which individuals who have identical schedules ride in the same vehicle and share transportation expenses like fuel, parking, and toll fees (Wang et al. (2018). For drivers and passengers, ride-sharing reduces travel costs and increases convenience. Environmentally, ride-sharing may reduce the number of vehicles on the road, leading to a decline in energy consumption and greenhouse gas emissions (Greenwood et al. 2017). Societal benefits may include reduced traffic congestion and increased opportunities to meet new people from different backgrounds, which, in turn, increases trust and improves knowledge or skills (Wang et al. 2018).

Both Uber and Lyft rely on a network of independent contractors using their own vehicles to provide transportation for travelers based on the ride-sharing principles. In a 2017

study, Greenwood et al. (2017) found that after the introduction of Uber services, there was a significant drop in the rate of fatalities related to DUI in large cities. Despite many apparent advantages of ride-sharing services, there are still challenges of acceptance by some consumers and governments around the world.

For the most part, many developed countries have accepted and encouraged the use of ride-sharing services through local and regional policies (Wang et al. 2018). But, use of these apps is not without risks. To decrease perceived risk and promote mutual trust for those using Uber and Lyft, both apps include a rating system built into their software (Hong, 2017). Ride-sharing services have also been subject to controversy with respect to contractor benefits. For instance, labor activists in the U.S. and Europe have launched lawsuits demanding worker rights and benefits for people who work as ride-sharing drivers (Schechner, 2018). In China, there are concerns regarding safety standards. Limited support by the Chinese government has dampened the growth of ride-sharing in that country (Wang et al. 2018). The government taxi services in China also claim ride-sharing drivers are not always licensed, which poses a security threat (Wang et al. 2018). Pressure by the public and governments has led ride-sharing companies to explore creative tactics to appeal to new audiences by either changing perceptions or adapting their business model.

Wang et al. (2018) analyzed perceived ease of use, usefulness, and risk as it pertains to ride-sharing services in China. They define perceived ease of use as the extent to which the use of technology is considered easy and effortless. Perceived usefulness refers to the extent to which a consumer thinks that using ride-sharing services contributes to strategic initiatives such as lowering commuting costs, reducing greenhouse gas emissions, and mitigating traffic congestion (Wang et al. 2018). The researchers hypothesized that perceived ease of use would

have a positive effect on perceived usefulness and be positively correlated with consumers' intentions to use ride-sharing services. They found personal innovativeness, environmental awareness, and perceived usefulness to be positively associated with consumers' intention to use rise-sharing services. However, despite their expectations, the effect of consumers' perceived ease of use on intention to use ride-sharing services was insignificant. The authors believe that the use of mobile applications in China has become increasingly common with many consumers having experience using mobile applications, suggesting they already believe them to be easy to use. Thus, consumers in China do not choose to use ride-sharing services purely based on simplicity or ease of use. Their results suggest that only when the perception that ride-sharing services are beneficial to the user does perceived ease of use make an impact on behavior.

While perceived benefit has been shown to be positively associated with technology adoption, prior research on a variety of technology adoption variables across a range of business sectors have somewhat mixed and even conflicting results. This new study contributes to this broad field by comparing perceived ease of use, usefulness, and risk in the context of ride-sharing in the United States.

Chapter 3

Methodology

Survey Design & Development

The survey questions were developed from extensive reviews of the literature on perceived usefulness, ease of use, and risk. The survey employed in this study is a variation derived from several studies. Phrasing of the questions was modified for the context of ride-sharing to compare perceptions and usage data. For example, Romero et al. (2014), uses "I think" statements to articulate the perception questions. This study uses similar language, but instead uses "I feel" and "I believe" statements. The adaptation was made to provide alternative ways of expressing perceptions through declarative statements.

The survey also incorporates a series of questions addressing the ease of use, usefulness, and risk from the perspective of ride-sharing users. It was necessary to compile data from both non-users and users to compare their perceptions and experiences. This additional step addresses one of Wang et al. (2018) study limitations: omitting data from actual users. This study evaluates non-users' feelings and beliefs on ride-sharing based on perceptions, compared to users' beliefs based on experiences. Non-users include non-passengers and non-drivers, while users include passengers and drivers. To facilitate the data collection process, the perception and usage questions were combined into a single questionnaire, segmented by a structural flow based on how respondents identified (i.e. non-passenger, passenger, non-driver, driver).

All answers were measured on a five-point Likert scale: Strongly Agree (4); Agree (3); Disagree (2); Strongly Disagree (1). Zero was assigned to "Neither Agree nor Disagree" responses (These responses were omitted from the statistical analyses.). In addition to the Likert scale, specific demographic questions were asked at the end of the questionnaire. Table 1 reports

the non-passenger survey statements; Table 2 shows the non-driver statements. The usage questions (actual passengers and drivers) have similar wording, substituting "in my experience" for "I feel" or "I believe." The following tables show the specific survey questions and the sources used to construct each question:

Table 1: Non-Passenger Perceptions

Factors	Survey Question	Researchers
Perceived Usefulness		
	I feel that ride-sharing mobile applications increase passenger mobility with respect to time	Davis (1989); Lai et al. (2004); Noh et al. (2016); Wang et al. (2018)
	I believe that ride-sharing mobile applications increase passenger mobility with respect to distance	
	I feel that ride-sharing mobile applications benefit society by increasing transportation options for passengers	
Perceived Ease of Use		
	I believe learning how to use ride-sharing mobile applications as a passenger is easy	Davis (1989); Romero (2014); Noh et al. (2016); Wang et al. (2018)
	I feel ride-sharing mobile applications are designed effectively, making them easy to use for passengers	
Perceived Trust/Risk		
	I believe there is low risk of wasting significant time as a passenger for ride-sharing mobile applications	Wang et al. (2018)
	I feel there is low risk of accidents or injury liability while using ride-sharing services as a passenger	
	I believe there is low risk of drivers falsely representing themselves as ride-sharing drivers	
	I believe there is low risk of drivers not knowing routes or directions	

Table 2: Non-Driver Perceptions

Factors	Survey Question	Researchers
Perceived Usefulness		
	I believe ride-sharing mobile applications increase driver efficiency with respect to time	Davis (1989); Lai et al. (2004); Noh et al. (2016); Wang et al. (2018)
	I believe ride-sharing mobile applications increase driver efficiency with respect to distance	
	I believe using ride-sharing mobile applications increases driver earnings	
	I believe ride-sharing mobile applications benefit society by increasing transportation options	
Perceived Ease of Use		
	I believe learning how to use ride-sharing mobile applications is easy	Davis (1989); Romero (2014); Noh et al. (2016); Wang et al. (2018)
	I believe ride-sharing mobile applications are designed effectively, making them easy to use	
Perceived Trust/Risk		
	I believe there is low risk of wasting significant time while working as a contractor for ride-sharing mobile applications	Wang et al. (2018)
	I believe there is low risk of wasting significant amounts of fuel while working as a contractor for ride-sharing mobile applications	
	I believe there is a low financial liability risk while working as a contractor for ride-sharing mobile applications	
	I believe there is low risk of financial loss. Meaning, other costs (depreciation, insurance, wear and tear, and maintenance) do not exceed revenue earned	

Creation of the questionnaire required compliance with Penn State's Institutional Review Board (IRB). The IRB is tasked with reviewing and approving human subject research conducted by any person associated with the university. To obtain IRB approval, an application including the procedural guidelines, questionnaire content, sample information, recruiting methods, survey procedures, sample definition, and the statement of consent was submitted. The IRB application required assurance that all data gathered would be kept confidential and no personally identifying data would be collected, which reduced the risk of a confidentiality breach. Additionally, because the study did not pose any threat or harm to the participants, it fell under "Expedited Review" and "Exempt" status, meaning that it required a less intensive review before ultimately being approved for distribution.

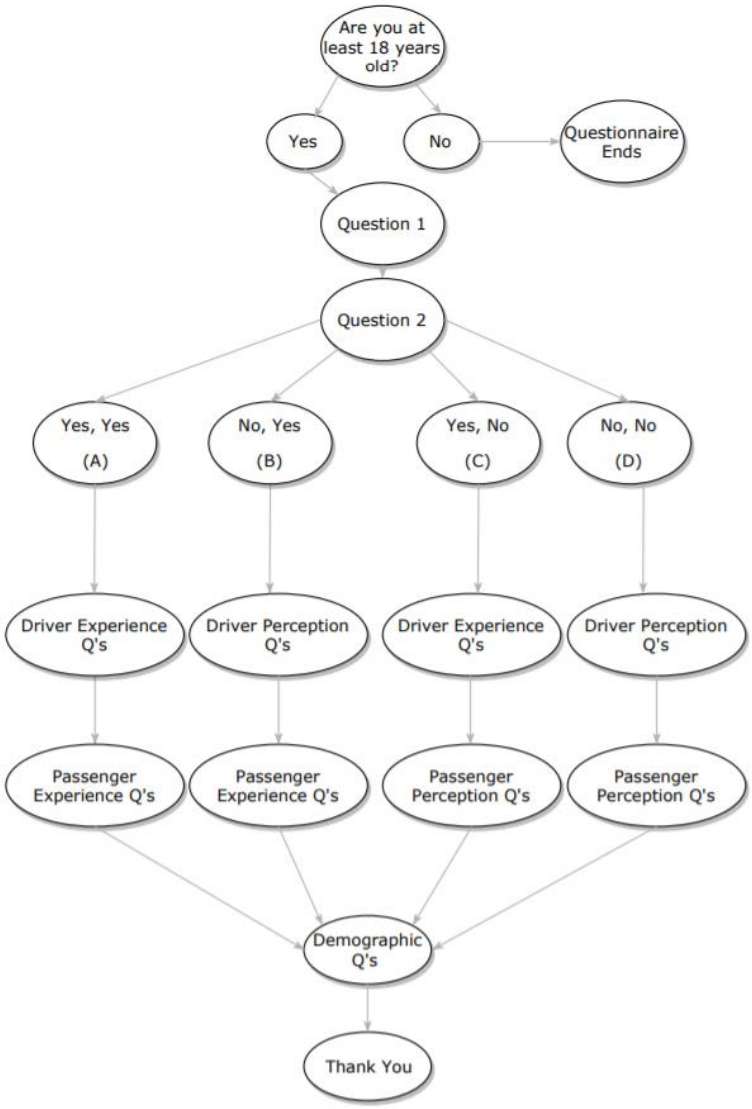
Structural Flow

The structural flow of the questionnaire was primarily modeled after Romero et al. (2014), Noh et al. (2016), and Wang et al. (2018). Potential participants were first asked their age. Those over 18 are led to the first question. Due to an IRB requirement, respondents under 18 were immediately thanked and informed they were not allowed to participate in the study. After the age question, respondents were asked if they had ever worked in the gig-economy as a contracted driver. Participants who identified as drivers were divided further into Uber specific drivers, Lyft specific drivers, or both. The driver subgroups then answered a series of experience related questions while the non-driver subgroup answered perception related questions.

Following the driving beliefs/experiences questions, participants were asked if they had ever used ride-sharing services as a passenger. Participants who self-identified as having been passengers were also divided into Uber specific passengers, Lyft specific passengers, or both. To organize construction of the survey paths, each cohort was given a label: A, B, C, and D. Cohort

A consisted of participants identifying as both drivers and passengers (Yes, Yes); Cohort B identified as non-driver and passenger (No, Yes); Cohort C represented drivers, but not passengers (Yes, No); and Cohort D identified as neither a driver or passenger (No, No). Each participant, regardless of cohort, was asked a series of demographic questions at the end. These included: gender, age, race, zip code, education level, and monthly net income. Figure 1 illustrates the structural flow of the survey design:

Fig. 1: Structural Flow



Data Collection

The survey flow was input in Qualtrics, an online survey administration software system. The primary data collection objective focused on achieving a representative mix of participants: non-drivers, drivers, non-passengers, and passengers. To reach an appropriate pool of participants, it was decided that the electronic survey would be disseminated through social media. The survey was shared widely among various users on designated social media platforms: Facebook, Twitter, Instagram, and LinkedIn. Surveying individuals through social media increased the likelihood that the survey would reach a diverse random sample (Brown, 2017).

With IRB approval, the description of the project, consent information and the survey link were shared November 22, 2018 through January 22, 2019. The social media description stated:

> I'm a Penn State University Schreyer Honors student. My senior thesis explores the perception and acceptance of gig-economy or ride-sharing services such as Uber or Lyft. Participation in this study is fully voluntary. You may refuse to answer any question or revoke your consent to participate at any time. There are no penalties for refusal to participate or rescinding consent. The questionnaire results will be anonymous and stored in a secure database for three years. The records of this study will be kept private and confidential. Your completion of this short questionnaire (5 minutes) is greatly appreciated. Thank you for your time.

Since the questionnaire was designed to be answered by users and non-users of ride-sharing applications, it was important to customize the social media posts to each target audience. For example, the social media post seeking driver participation in the study stated: "I am looking to learn more from Uber or Lyft drivers. If you drive for Uber or Lyft, please take 5 minutes to complete a short survey. Thank you. Please forward and share widely!"

The survey is provided in Appendix A. The data are stored in a secure University-supported repository (Box). It will be held there for three years and then destroyed. The records of this study will be kept private and confidential as required by IRB.

Chapter 4

Results

Introduction

To compare the perceptions and experiences of ride-sharing services, it was essential to evaluate the results side-by-side. Each component of the survey was analyzed through Qualtric's Stats IQ tools and converted to Microsoft Excel where the data could be analyzed against other responses. Initially, non-driver and driver results were organized in tables in order to identify patterns in responses, then non-passenger and passenger data were arranged in a similar manner. The evaluation began by computing the percentage of responses for each measurement variable on the five-point Likert Scale. The level of agreement was quantified by applying numbered scores to each response: "4-Strongly Agree," "3-Agree," "2-Disagree," "1-Strongly Disagree," "Neither Agree not Disagree" responses were assigned a value of zero and were not part of the mean computations. This step allowed for a clearer depiction of how the respondents felt about each measure.

The survey link reached approximately 1,400 social media connections (based on my personal social media connection count). A total of 134 subjects participated in the study, resulting in a 9.5% response rate. In 42 cases, respondents omitted one or more questions and were not factored into the results because the study was designed to compare user and non-user perceptions of both drivers and passengers. No systematic bias was noted in the omitted responses. Of the 92 complete responses (n=92), 85 (92%) identified as non-drivers, 7 (8%) were drivers, 67 (73%) were passengers, and 25 (27%) were non-passengers.

The demographic information is shown in Table 3. More than half of the respondents were female (57.6%) and more than 42% over the age of 51. Overall, more than 50% of the participants earned at least a bachelor's degree. The sample is rather affluent, with roughly 63% earning a monthly net income between $4,000 and $8,000. The clear majority (83.7%) were white living in three states: Pennsylvania, New Jersey, and Massachusetts with the most residing in Pennsylvania.

Table 3 Demographic Profile of Respondents (n=92)

Group	Count	Percentage
Gender		
Male	37	40.2
Female	53	57.6
I do not wish to disclose	2	2.2
Age		
19-25	21	22.8
26-32	17	18.5
33-40	7	7.6
41-50	7	7.6
51 and Over	39	42.4
I do not wish to disclose	1	1.1
Race/Ethnicity		
Caucasian	77	83.7
Hispanic/Latino	6	6.5
Asian	4	4.3
Black	2	2.2
I do not wish to disclose	3	3.3
Education Level		
High Diploma or Equivalent (e.g. GED)	26	28.3
Associate Degree (e.g. AA, AS)	12	13.0
Bachelor's Degree (e.g. BA, BS)	31	31.7
Master's Degree (e.g. MA, MS, Med	14	15.2
Ph.D.	6	6.5
I do not wish to disclose	3	3.3
Monthly Net Income		
Less than $4,000	18	19.6
$4,000-$8,000	28	30.4
$8,001-$12,000	12	13.0
Over $12,000	18	19.6
I do not wish to disclose	16	17.4

Non-Passengers vs. Passengers

Comparative analysis of passengers and non-passengers focused on the three areas previously discussed: usefulness, ease of use, and risk. Most of the sample (non-passengers and passengers) agreed that apps like Uber and Lyft increase mobility through reduced time, increased distance, and greater transportation options (See Tables 4 & 5). There is consensus on the ease of use questions. The data suggest that both users and non-users assign positive value to these mobile ride-sharing applications. Because the responses are so similar, there is no evidence that app users (passengers) feel more strongly about the benefits, perceived or experienced, than non-users (non-passengers).

Table 4: Non-Passenger Perceptions Data (n=25)

Factors	Measurement Variable	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
Perceived Usefulness						
	Passenger Mobility (Time)	-	3	3	15	4
		-	12.0%	12.0%	60.0%	16.0%
	Passenger Mobility (Distance)	1	3	6	12	3
		4.0%	12.0%	24.0%	48.0%	12.0%
	More Transportation Options	-	2	-	13	10
		-	8.0%	-	52.0%	40.0%
Perceived Ease of Use						
	Easy to Learn	-	5	8	7	5
		-	20.0%	32.0%	28.0%	20.0%
	Effective Design	-	3	6	9	7
		-	12.0%	24.0%	36.0%	28.0%
Perceived Trust/Risk						
	Low Risk (Wasting time)	-	4	5	9	7
		-	16.0%	20.0%	36.0%	28.0%
	Low Risk (Accident/Injury)	1	9	6	8	1
		4.0%	36.0%	24.0%	32.0%	4.0%
	Low Risk (Driver False Representation)	4	7	2	10	2
		16.0%	28.0%	8.0%	40.0%	8.0%
	Low Risk (Driver Getting Lost)	2	3	4	14	2
		8.0%	3.0%	16.0%	56.0%	8.0%

This table shows the count and percentage from total respondents.

In contrast, one might expect the questions related to risk would show marked differences between passengers and non-passengers. Examining responses to the survey statement “there is low risk of accident or injury,” non-passengers slightly disagreed (Mean=2.47; Median=2), while passengers slightly agreed (Mean=2.59; Median 3). Based on the values assigned to the responses, values above 2.50 represent agreement. Values closer to 4 suggest strong agreement; values closer to 1 represent stronger disagreement. Because the results are so close, a two-tailed

t-test was employed to assess whether the perceptions, in terms of risk, are statistically different than experiences. The computed p-value of 0.57 indicates there is no statistically significant difference in perceived risk of injury between passengers and non-passengers.

Table 5: Passenger Experience Data (n=67)

Factors	Measurement Variable	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
Usefulness						
	Passenger Mobility (Time)	-	4	5	30	28
		-	6.0%	7.5%	44.8%	41.8%
	Passenger Mobility (Distance)	-	-	12	29	26
		-	-	17.9%	43.3%	38.8%
	More Transportation Options	-	-	1	18	48
		-	-	1.5%	26.9%	71.6%
Ease of Use						
	Easy to Learn	-	5	2	24	36
		-	7.5%	3.0%	35.8%	53.7%
	Effective Design	-	5	6	23	33
		-	7.5%	9.0%	34.3%	49.3%
Trust/Risk						
	Low Risk (Wasting time)	-	3	6	23	35
		-	4.5%	9.0%	34.3%	52.2%
	Low Risk (Accident/Injury)	4	17	21	19	6
		6.0%	25.4%	31.3%	28.4%	9.0%
	Low Risk (Driver False Representation)	5	13	15	28	6
		7.5%	19.4%	22.4%	41.8%	9.0%
	Low Risk (Driver Getting Lost)	6	18	7	26	10
		9.0%	26.9%	10.5%	38.8%	14.9%

This table shows the count and percentage from total respondents.

The next risk item stated there is low risk of drivers falsely representing themselves. Somewhat surprisingly, the results are similar to the injury risk outcome. Passengers slightly agreed and non-passengers slightly disagreed. Further analysis of the responses reveals a lack of consensus within the non-passenger group. Of the non-passenger sample, 11 (44%) disagree there is low risk of false representation, 2 (8%) are unsure, and the rest of the sample (n=25) agree. Since the responses are so conflicted, false representation seems to be a concern and potential deterrent for some non-passengers. For the passenger sample, 34 (51%) participants agreed there is low risk, 15 (22%) are unsure, and the rest disagree. Thus, they appear similarly conflicted. Overall, the two groups' averages are not statistically different. These results mean both passengers and non-passengers recognize there is some risk associated with gig-economy drivers misrepresenting themselves. Note that this risk has not deterred app users from hiring

contract drivers. Since the means of the two groups are not statistically different, the data suggest perceived risk of false representation by drivers may not be an important factor in determining whether a person decides to use the app for ride sharing. However, the split responses suggest survey participants may not have a clear understanding of or means of assessing this risk category.

The final risk item considered issues associated with drivers not knowing the route or getting lost. As with the other two survey items on risk, there is no statistical difference in the responses between passengers and non-passengers. There is little need for speculation as to why risk is low for navigation since all ride-sharing applications come standard with built in navigation linked to the destination. Drivers always know what route to take (Brown, 2017).

Overall, the results suggest risk is not a clear factor for passengers in terms of intention to use because non-passengers and passengers generally both agree there is low risk. Since risk was not a significant enough determinant of intention to use for some participants, it was important to analyze the demographic information to explore alternative explanations for these findings. The differentiating factors are age, education, and monthly income. For non-passengers, 68% are over the age of 51 while 58% of passengers are under 40 years old. Many non-passengers (48%) earned at least a bachelor's degree, and most passengers (73.1%) have a bachelor's degree or less. Additionally, 60% of the non-passengers report earning $4k-$8k per month while 86.5% of passengers earn less than $8k per month.

Participants over 50, with at least a bachelor's degree and an income of $4k-$8k per month or over, may view riding with Uber or Lyft as inherently risky, thus avoiding the service. This group may be inherently more risk averse. They may, due to age and experience, assign higher risk to unfamiliar activities. In contrast, participants under 40 years old without a

bachelor's degree and earning less than $8k per month view the chances of getting injured as a passenger as low, thus they are not dissuaded from using the service. This result could be because younger generations such as Millennials are inherently willing to adopt technology with associated risks (Brown, 2017).

Non-Drivers vs. Drivers

The demographic data reveals that 100% of ride-sharing drivers identify as male while most (53%) non-drivers identify as female, the first major gender difference in this study. Non-drivers are also slightly older than drivers with most (50.6%) identifying as over 41, while 57% of drivers identify as under 40. Naturally, with a higher average age, most (74.1%) non-drivers earned a bachelor's degree or higher while many drivers (57.2%) obtained an associate degree or less. A small number of drivers responded to the questionnaire (7), meaning the following results represent a case study rather than a statistical analysis.

Table 6: Non-Driver Perceptions Data (n=85)

Factors	Measurement Variable	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
Perceived Usefulness						
	Passenger Mobility (Time)	4	6	19	41	15
		4.7%	7.1%	22.4%	48.2%	17.6%
	Passenger Mobility (Distance)	2	12	22	35	14
		2.4%	14.1%	25.9%	41.2%	16.5%
	Increased Earnings	3	5	16	36	25
		3.5%	5.9%	18.8%	42.4%	29.4%
	More Transportation Options	-	3	3	32	47
		-	3.5%	3.5%	37.6%	55.3%
Perceived Ease of Use						
	Easy to Learn	-	5	16	32	32
		-	5.9%	18.8%	37.6%	37.6%
	Effective Design	-	4	22	29	30
		-	4.7%	25.9%	34.1%	35.3%
Perceived Trust/Risk						
	Low Risk (Wasting Time)	6	12	37	22	8
		7.1%	14.1%	43.5%	25.9%	9.4%
	Low Risk (Wasting Fuel)	4	27	29	17	8
		4.7%	31.8%	34.1%	20.0%	9.4%
	Low Risk (Financial Liability)	11	30	24	14	6
		12.9%	35.3%	28.2%	16.5%	7.1%
	Low Risk (Financial Loss)	9	34	20	14	8
		10.6%	40.0%	23.5%	16.5%	9.4%

This table shows the count and percentage from total respondents.

Table 7: Driver Experience Data (n=7)

Factors	Measurement Variable	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
Usefulness						
	Driver Efficientcy (Time)	1	-	2	-	4
		14.3%	-	28.6%	-	57.1%
	Driver Efficientcy (Distance)	1	1	3	2	-
		14.3%	14.3%	42.9%	28.6%	-
	Increased Earnings	1	-	-	3	3
		14.3%	-	-	42.9%	42.9%
	More Transportation Options	-	-	-	-	7
		-	-	-	-	100%
Ease of Use						
	Easy to Learn	-	1	1	1	4
		-	14.3%	14.3%	14.3%	57.1%
	Effective Design	-	2	1	2	2
		-	28.6%	14.3%	28.6%	28.6%
Trust/Risk						
	Low Risk (Wasting Time)	2	2	1	1	1
		28.6%	28.6%	14.3%	14.3%	14.3%
	Low Risk (Wasting Fuel)	-	3	2	-	2
		-	42.9%	28.6%	-	28.6%
	Low Risk (Financial Liability)	2	-	1	3	1
		28.6%	-	14.3%	42.9%	14.3%
	Low Risk (Financial Loss)	2	-	2	1	2
		28.6%	-	28.6%	14.3%	28.6%

This table shows the count and percentage from total respondents.

Most non-drivers and drivers in this sample agreed with the statements on usefulness and ease of use (shown in Tables 8 & 9). However, unlike non-passengers and passengers, drivers mostly disagreed with the statements on risk. Specifically, they disagreed with the items indicating low risk of wasting time, wasting fuel, incurring financial liability, or experiencing financial loss. For risk of wasting time, non-drivers indicate low risk of wasting time (Mean=2.69; Median=3), while drivers disagree (Mean=2.28; Median=2). In contrast to the issue of time risk, non-drivers and drivers both disagree that there is low risk associated with wasting significant amounts of fuel while driving for Uber and Lyft. Yet, this factor does not appear to be a determinant of drivers' intent to use or engage in the gig-economy because although drivers acknowledge these risks, they have still chosen to offer ride-sharing services as contractors.

With respect to financial liability (loss resulting from an accident), non-drivers perceive that there is risk (Mean=2.21; Median 2) associated with contracted driving, yet actual drivers express slight agreement that there is low risk (Mean=2.6; Median=3). Digging deeper, the driver data suggests drivers are unclear about this risk: while the mean and median suggest

agreement with low risk, there are some drivers who strongly disagree. Disagreement among non-drivers, along with weak agreement regarding low risk by drivers, suggest the risk of financial liability may be a barrier for intended use by drivers. This outcome is consistent with previous research by Wang et al. (2018).

This survey also asked about financial loss: the possibility that costs like wear and tear and depreciation exceed revenue. With respect to financial loss risk, non-drivers disagree there is low risk (Mean=2.3; Median=2). As above, drivers agree that the risk is low (Mean=2.7; Median=3). Non-drivers may be over-estimating this risk compared to drivers' actual experiences. This potential negative perception may be a barrier to increasing the pool of ride-share drivers.

Chapter 5

Conclusion

Findings

Ride-sharing has been regarded as a viable and convenient way to travel, especially in urban settings (Brown, 2017). Based on prior research, variations of the technology acceptance model provide the framework necessary to investigate consumers' intention to use, grounded in the relationships between perceived usefulness, ease of use, and risk. This study incorporates the same factors of perception and actual user experiences from passengers and drivers. The study also considers the demographics of non-users and users of ride-sharing services.

The results suggest perceived usefulness and ease of use are not important determinants of acceptance of ride-sharing services as a passenger or driver. These results are partially consistent with Wang's et al. (2018) previous research that found perceived ease of use has no significant impact on intention to use ride-sharing services in China. But they also found perceived usefulness has a positive effect on intent. Since the use of mobile applications has become common practice, developers have a better understanding of what users are looking for regarding the ideal user experience, which has led to more customers recognizing the intended benefits of these services. There may also be demographic or cultural differences between Wang et al. (2018) and this study, which contribute to the different results.

Of significance are the results regarding risk and user/non-user experiences and perceptions for both passengers and drivers. The findings suggest perceived risk may be a determinant for passengers and drivers when they consider using ride-sharing services. Prospective passengers contemplating using Uber or Lyft are exposed to negative media

coverage associated with accidents or injury (Malos et al. 2018). For prospective drivers, compared to traditional transportation services such as taxi cabs, ride-sharing companies do not provide their drivers with vehicles or smartphones, which are needed to facilitate the service. The perceived individual liability associated with drivers providing their own car and phone may seem too risky to commit, despite drivers claiming it is not risky.

The goal of this thesis was to build on previous findings to conduct a study on ride-sharing that extends understanding of non-user perceptions and user experiences to investigate possible factors related to technology adoption. The results of this study offer insights that might be useful for Uber and Lyft, but also for other companies operating within or considering entry to the gig-economy. Since the results suggest that perceived risk is a critical determinant of drivers' intention to use ride-sharing services as a contractor, companies can consider strategies to minimize perceived risk and encourage use.

Ride-sharing companies might consider how the perceived risks associated with driver financial liability and loss, which are the two main variables contributing to the negative risk perceptions, may be inhibiting driver enrollment. Uber and Lyft could for example share information more widely about Uber's insurance program for drivers. Companies could create marketing campaigns tailored to specific target contractors based on demographic information related to this research. This strategy could prove effective when trying to combat negative media coverage. Similarly, media campaigns and app enhancements could aid in overcoming passengers' risk perceptions, particularly with respect to injury risk and risks of driver misrepresentation.

This research lays a foundation for future studies of gig economy apps in other contexts, such as my start-up. Instead of identifying passengers and drivers, a future study could target

interpreters, patients, and healthcare professionals to gain insights on the perceptions of the freelance interpreter concept and technology so that my company can address any negative perceptions identified in the research.

Limitations and Further Research

Although this research resulted in interesting outcomes and has practical implications for companies and contracted workers, it has limitations that must be acknowledged. The first limitation relates to the low response rate. Although the electronic survey was seen by roughly 1,400 people, only 92 submitted complete surveys. While the number of total respondents may be reasonable for a thesis, having a larger sample size would increase confidence in these results. Particularly disappointing is the small number of driver participation in the study. Since only 7 ride-sharing drivers responded, the data cannot be widely generalized to Uber or Lyft drivers. One suggestion for future studies in this area would be to reach out to driver groups, like the Uber Driver's Association, which might have yielded a larger driver sample.

Another limitation relates to geography. The study participants represent a limited subset of United States, with participants only residing in Pennsylvania, New Jersey, and Massachusetts. Thus, this research should be regarded as a small case study. It is unclear how these findings, obtained from participants in the mid-Atlantic region of the country, might differ from other regions of North America. Thus, the finding should be interpreted with caution. Nonetheless, the conclusions provide some new evidence with respect to technology acceptance in the ride-sharing industry.

Appendix A

Questionnaire

Thank you for taking the time to complete this short (5 minute) research questionnaire regarding perceptions and acceptance of ride-sharing mobile applications and the gig-economy. Participation in this survey is completely voluntary and anonymous.

Q2 Are you 18 years of age or older?

- ○ Yes (1)
- ○ No (2)

Skip To: Q3 If Q2 = Yes

Skip To: Q15 If Q2 = No

Q15 Thank you for your time. You have to be 18 years or older to participate in the study. Please have a good day.

Skip To: End of Survey If Q15() Is Displayed

Display This Question:

If Q2 = Yes

Q3 Have you ever worked in the gig-economy as a contractor for ride-sharing applications such as Uber or Lyft?

- ○ Yes, Uber (1)
- ○ Yes, Lyft (2)
- ○ Yes, both Uber & Lyft (3)
- ○ No (4)

Skip To: Q4 If Q3 = Yes, Uber

Skip To: Q4 If Q3 = Yes, Lyft

Skip To: Q4 If Q3 = Yes, both Uber & Lyft

Skip To: Q62 If Q3 = No

Q62 Because you indicated that you have never been a driver for ride-sharing applications, the following questions seek your beliefs and perceptions.

Q63 I believe ride-sharing mobile applications increase driver efficiency with respect to time

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q64 I believe ride-sharing mobile applications increase driver efficiency with respect to distance

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither agree Nor disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q65 I believe using ride-sharing mobile applications increases driver earnings

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q66 I believe ride-sharing mobile applications benefit society by increasing transportation options

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q67 I believe using ride-sharing mobile applications provide a convenient way to earn money

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q68 I feel that learning how to use ride-sharing mobile applications is easy

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q69 I believe ride-sharing mobile applications are designed effectively, making them easy to use

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q70 I believe there is low risk of wasting significant time while working as a contractor for ride-sharing mobile applications

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q71 I believe there is low risk of wasting significant amounts of fuel while working as a contractor for ride-sharing mobile applications

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q72 I believe there is a low financial liability risk while working as a contractor for ride-sharing mobile applications

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q73 I believe there is low risk of financial loss. Meaning, other costs (depreciation, insurance, wear and tear, and maintenance) do not exceed revenue earned

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q74 I believe ride-sharing applications give drivers more money than traditional offerings such as Taxi services

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Skip To: Q34 If Q74 =

Skip To: Q34 If Q74 = Select One

Skip To: Q34 If Q74 = Select One

Skip To: Q34 If Q74 =

Skip To: Q34 If Q74 =

Skip To: Q34 If Q74 =

Skip To: Q34 If Q74 =

Skip To: Q34 If Q74 =

Skip To: Q34 If Q74 =

Q4 In my experience, ride-sharing mobile applications increase driver efficiency with respect to time

	Strongly Disagree (1)	Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q7 In my experience, ride-sharing mobile applications increase driver efficiency with respect to distance

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q8 In my experience, using ride-sharing mobile applications increases driver earnings

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q9 In my experience, ride-sharing mobile applications benefit society by increasing transportation options

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q10 In my experience, learning how to use ride-sharing mobile applications is easy

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q11 In my experience, ride-sharing mobile applications are designed effectively, making them easy to use

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q12 In my experience, there is low risk of wasting significant time while working as a contractor for ride-sharing mobile applications

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q13 In my experience, there is low risk of wasting significant amounts of fuel while working as a contractor for ride-sharing mobile applications

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q14 In my experience, there is a low financial liability risk while working as a contractor for ride-sharing mobile applications

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q15 In my experience, there is low risk of financial loss. Meaning, other costs (depreciation, insurance, wear and tear, maintenance, gas) do not exceed revenue earned

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q16 In my experience, there are more environmental benefits to driving for a ride-sharing company than other services

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q17 In my experience, ride-sharing applications increase drivers' earnings opportunities more than traditional offerings such as Taxi services

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Skip To: Q34 If Q17 = Select One
Skip To: Q34 If Q17 =
Skip To: Q34 If Q17 =
Skip To: Q34 If Q17 =
Skip To: Q34 If Q17 =
Skip To: Q34 If Q17 =
Skip To: Q34 If Q17 =

Q34 Have you ever been a passenger of a ride-sharing applications such as Uber or Lyft?

- ○ Yes, Uber (1)
- ○ Yes, Lyft (2)
- ○ Yes, Uber & Lyft (3)
- ○ No (4)

Skip To: Q38 If Q34 = Yes, Uber
Skip To: Q38 If Q34 = Yes, Lyft
Skip To: Q38 If Q34 = Yes, Uber & Lyft
Skip To: Q63 If Q34 = No

Q63 Because you have selected that you have never been a passenger of ride-sharing applications, the following questions seek your beliefs and perceptions.

Q36 I feel ride-sharing mobile applications increase passenger mobility with respect to time

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q39 I believe ride-sharing mobile applications increase passenger mobility with respect to distance

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q40 I feel ride-sharing mobile applications benefit society by increasing transportation options for passengers

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q41 I believe learning how to use ride-sharing mobile applications as a passenger is easy

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q42 I feel ride-sharing mobile applications are designed effectively, making them easy to use for passengers

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q43 I believe there is low risk of wasting significant time as a passenger for ride-sharing mobile applications

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q44 I feel there is low risk of accidents or injury liability while using ride-sharing services as a passenger

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q45 I believe there is low risk of drivers falsely representing themselves as ride-sharing drivers

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q46 I believe there is low risk of drivers not knowing routes or directions.

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Skip To: Q61 If Q46 = Select One

Skip To: Q61 If Q46 =

Skip To: Q61 If Q46 =

Skip To: Q61 If Q46 =

Skip To: Q61 If Q46 =

Skip To: Q61 If Q46 =

Skip To: Q61 If Q46 =

Q47 As a passenger, I feel there are more environmental benefits to ride-sharing than other services.

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q48 I feel there is low risk of ride-sharing drivers lacking standard (mechanical) automobile knowledge

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q49 I believe ride-sharing applications are more affordable for passengers than traditional offerings such as Taxi services

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q38 In my experience, ride-sharing mobile applications increase passenger mobility with respect to time

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q52 In my experience, ride-sharing mobile applications increase passenger mobility with respect to distance

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q53 In my experience, ride-sharing mobile applications benefit society by increasing transportation options for passengers

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q54 In my experience as a passenger, learning how to use ride-sharing mobile applications is easy

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q55 In my experience as a passenger, ride-sharing mobile applications are designed effectively, making them easy to use

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q56 In my experience as a passenger, ride-sharing mobile applications reduce the risk of wasting time waiting for transportation

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q57 In my experience, there is low risk of accidents or injury liability while using ride-sharing services as a passenger

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q58 In my experience as a passenger, there is low risk of drivers falsely representing themselves as ride-sharing drivers

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q59 In my experience as a passenger, there is low risk of drivers not knowing routes or directions

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q60 In my experience as a passenger, ride-sharing services have more environmental benefits than other transportation services

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q61 In my experience as a passenger, there is low risk of ride-sharing drivers lacking standard (mechanical) automobile knowledge

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Q62 In my experience, ride-sharing applications are more affordable for passengers than traditional offerings such as Taxi services

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
Select One (1)	○	○	○	○	○

Skip To: Q61 If Q62 = Select One

Skip To: Q61 If Q62 =

Skip To: Q61 If Q62 =

Skip To: Q61 If Q62 =

Skip To: Q61 If Q62 =

Skip To: Q61 If Q62 =

Skip To: Q61 If Q62 =

Q61 The final questions are for research purposes only and all results are anonymous.

Q75 Gender

- ○ Male (1)
- ○ Female (2)
- ○ I do not wish to identify (3)

Q76 Age

- ○ 19-25 (1)
- ○ 26-32 (2)
- ○ 33-40 (3)
- ○ 41-50 (4)
- ○ 51 and Over (5)
- ○ I do not wish to disclose (6)

Q77 Race/Ethnicity

- ○ Caucasian (1)
- ○ Black (2)
- ○ Hispanic/Latino (3)
- ○ Asian (4)
- ○ Native American (5)
- ○ Other (6)
- ○ I do not wish to disclose (7)

Q78 Home Zip Code

_____

Q79 What is the highest degree or level of school you have completed? (If you're currently enrolled in school, please indicate the highest degree you have completed.)

- ○ Less than high school diploma (1)
- ○ High school diploma or equivalent (e.g. GED) (2)
- ○ Associate Degree (e.g. AA, AS) (3)
- ○ Bachelor's Degree (e.g. BA, BS) (4)
- ○ Master Degree (e.g. MA, MS, MEd) (5)
- ○ Ph.D. (6)
- ○ I do not wish to disclose (7)

Q80 Monthly Net Income

- ○ Less than $4,000 (1)
- ○ $4,000-$8,000 (2)
- ○ $8,001-$12,000 (3)
- ○ Over $12,000 (4)

I do not wish to disclose (5)

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ACADEMIC VITA

Ryan E. Morris
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Education

Pennsylvania State University, 2019
B.S. Honors in Business
Concentration: Marketing & Management
Minor: Entrepreneurship & Innovation

Thesis: Gig-Economy Investigation: A Study of Ride-Sharing Perceptions and User Experiences
Thesis Supervisor: Lolita Paff

Leadership

Student Government Association – Pres. (2017-2019); VP (Spring 2017); FM (Fall 2016) 2016-2019

- Oversee Student Government Central Staff personnel made up of 25 chairs and co-chairs
- Voting Member on Penn State Council of Commonwealth Student Governments (CCSG)
- Led a smoke free campus campaign at CCSG which was passed in Spring 2018
- Led counseling and psychological services (CAPS) legislation at CCSG
- Led a $1.2 million campaign as the chair of the Student Activities Fee committee for fitness center renovations
- Passed legislation on establishing an internal mental health program on campus
- Lobbied fiscal support from Pennsylvania legislators to increase state funding through the "Drive to Strive" and "Grassroots" initiatives as a member of CCSG
- Chair on the Student Activity Fee Committee
- Manage campus budgets and allocate funds to all campus organizations
- Ex-officio member on the Penn State Berks Advisory Board

Collegiate DECA – Director of Correspondence (2015-16): Fundraising Chair (Fall 2017) Fall 2015-2019

- Placed 3rd in the 2017 Mid-Atlantic Collegiate DECA Competition for Marketing Management
- Compete in business competitions at state and national levels

Lion Ambassador – Member 2016-2018

- Conduct campus tours and various other service activities

Community Service

Knights of Columbus – Church Director (2018-19) 2017-2019

- Perform charitable activities for the local community, including food drives, clothing drives, and home repair

Chester County – Committee Person Honey Brook Township-2 2018-2019

- Meet with constituents in my precinct and attend township meetings to discuss issues at local level

Country Meadows Retirement Community – Volunteer 2018-2019

Tedx PSU Berks – Curation Team Member July 2018 -November 2018

- Helped select the speakers and assisted with logistics the day of the event

Opportunity House – Meal Cook & Server 2018-2019

Habitat for Humanity – Volunteer 2015-2017

- Helped refurbish donated furniture for people in need

Honors & Awards

Schwarzman Scholar	2019-2020
Penn State Berks Dean's List	2015-2019
Boscov Scholar Achievement Award	Fall 2017-Spring 2019
Business – Outstanding Service Award	Spring 2019
Invent Penn State ICorps Grant	Fall 2018
William G. Hintz Jr. Scholarship Fund Recipient	Fall 2018
Invent Penn State Berks Project Fund Award	Fall 2018
Wickel Family Award/Scholarship for Outstanding Business Undergraduate	Spring 2018
Class of 1922 Memorial Scholarship	Fall 2017-Spring 2018
Glenn E. '73 and E. Jane Moyer Family Scholarship Recipient	Fall 2017
Mid-Atlantic Collegiate DECA Competition (Marketing & Management) - Third Place	Spring 2017
Penn State Student Enterprise Award	2016-2017
James J. Barr Memorial Scholarship	Fall 2015
Morgantown Area Business Association Scholarship Recipient	Fall 2015
Miller Keystone Blood Donor Recruitment Scholarship Recipient	Fall 2015

International Experience

CRIMJ 494H - Drug Control Policy in Comparative Perspective — March 2019
Traveled to Hague & Amsterdam, Netherlands during spring break to compare drug control policy and legal perspectives to those of the United States

HUM 200H - International Medieval Quest — March 2018
Traveled to Beijing, Shanghai, Hangzhou, and Suzhou, China

Relevant Work Experience

Traduki Technologies, LLC — Honey Brook, PA
Co-Founder & CEO — July 2017-Present

- Manage a team of 7 software developers and develop project plans to deliver results in alpha and beta testing
- Formulate and implement strategic plans for the company (fundraise, research, and develop new business)
- Piloting the mobile application at the Penn State Berks Writing Center

Aetna Inc. — Hartford, CT
General Management Intern - Medicare Department — June 2018-August 2018

- Analyzed data, sales results, and a mix of media approaches (TV,Print,Social/Digital) to drive marketing decisions for the annual enrollment period (AEP)
- Led the Extra Care Health Cards agreement project between Aetna and CVS Health as the honorary project manager
- Led the APCN member experience team to research the consumer market and developed recommendations to create a differentiated member experience to present to senior leaders in the company
- Utilized market performance data to create decks and presented to pharmacies in the preferred network

Fastenal Company — Reading, PA
Sales Associate Intern — May 2016 - August 2017

- Contributed to average sales of $160,000 per month through business to business account relations
- Worked with a team of ten sales professionals while utilizing direct sales techniques and a Point of Sales system
- Developed business relationships with existing accounts to enhance existing business and promote new business