

Luke Allen, Fherna Caoili, Matthew Li Yilan Pan

Dr. David Stearns

INFO 200 BD

5 February 2017

Data Processing for Increased Driving Awareness and Oversight: User Research

To better develop an understanding for the product's target market- newly licensed teenage drivers- user research was performed to produce a more detailed picture of their habits and characteristics behind the wheel. In addition, alternative demographic groups and audiences were researched to better understand the marketability to potential alternative markets. These audiences include: average daily commuters, elderly drivers, and businesses. The research methods performed on our product's potential users included examining expert research, interviewing individuals, and an online circulated survey.

The expert research performed in our analysis included a series of reports published by the CDC, National Highway Traffic Administration, and the Insurance Institute for Highway Safety. These reports provided high level analysis of the various demographics and national driving statistics. Specifically, in research performed by the CDC they concluded that "Teens are more likely than older drivers to underestimate dangerous situations or not able to recognize hazardous situations". This conclusion, based on driving statistics and research performed on teenage drivers, acknowledges the lack of experience as a main contributing factor of vehicle accidents. Furthermore, research performed by the National Highway Traffic administration examined the cost of motor vehicle crashes and determined that in 2015 the economic cost exceeded 240 billion and the societal cost exceeded 836 billion. The administration additionally concluded that motor vehicles account for over 2 million injuries and approximately 36

thousands deaths annually. The expert research analysis was able to confirm that motor vehicle accidents still remain as one of the largest contributors to injuries and deaths in the United States and a primary reason to the problem are newly licensed drivers. Currently there is a lack of impactful solutions to decrease the number of car accidents in the United States and thus an opportunity for our product to fill the void.

The expert review allowed for high level insight on driver characteristics, however insufficient information for how to solve such problems. The interviews conducted provided a more personable approach for how our product can impact the driver's behavior and highlighted potential features to be included in the product. In total, 8 interviews were conducted. The individuals interviewed included: teen drivers (Run Qiao [Feb 3], Bin Jia [Feb 3], Kecheng Sun [Feb 3]), parents of teen drivers (Flor Garcia [Feb 2], Ruth Mercado [Feb 2], Jim Cornish [Feb 2]), child of an elderly driver (Shen Li [Feb5], Lisa Qing [Feb5]), and business owner (Shen Li [Feb5]). In the interviews conducted on teen drivers, a majority of the interviewees proclaimed that they believed they were good drivers but at the same time confessed to speeding and using their phones while driving. It became clear that the term "good driver" had a varying definition with teen drivers and primarily was based on the number vehicle accidents one has been in. In terms of teen drivers, the need for a non-bias driver scale should be implemented into the product that rates a driver's safe driving on a number of categories and not solely by the number of accidents one has been in. Additionally, an intuitive way of presenting the tracked driver data should be developed to "backup" the driver rating (i.e. speeding habits, swerving habits, phone usage, etc) and suggestions on how to improve. One of the key takeaways of the interviews with the teen drivers was their habit to drive in a safer manner when a parental is in the car with them. In the interview with Run Qiao, she stated "When my dad is in the passenger seat he always points out when I do something wrong, so I always try to be more detailed."

Incorporating a way to virtually place the adult in the car while a teen drives alone can be a major feature for the product to influence safer driving in teens. This feature however also came with negative backlash and privacy concerns for the teen drivers due to the idea of their parents knowing their behavior in a car alone. In the interviews with parents of teen drivers, their primary concern was the inability to know how their children behave when they are not present in the car. Creating a link for the parent to be able to monitor their teen's driving would not only allow for the ease of mind for the parent, but also a "virtual presence" of someone watching them while they drive. For parents, there were no privacy concerns regarding the amount of data they received on their children's driving habits since their children's safety is their primary concern. A reversal of roles was discovered when we interviewed a child of an elderly driver. Shen Li is the son of 91 year old Huon Li who still occasionally drives. In the interview, Shen Li believed that the product could also be used to monitor the driving skills of his father to better determine when his father is unfit of driving a car. Additionally, Shen Li, who also is a business owner, believed the product could be used to monitor the driving of his employees when they are operating company owned vehicles. In the interviews conducted, the main takeaways included the varying definition of a "good driver" and the potential ways a "virtual presence" inside a car can be utilized. The interview also presented a potential conflict of privacy concerns between parents and their teen drivers.

The final piece of user research performed was an online survey. The survey was circulated to friends and family and primarily used to retest and review the results and conclusions of the expert research. The survey was completed by 20 individuals and was comparable to the results of the statistics found through reviewing expert research. These statistics included the number of accidents individuals have been in and common bad habits such as using their phone while driving.

The user research performed allowed for a better understanding of the potential future users of the product. In information gather by examining expert research, a big picture idea was provided on national driving safety issues. In the online survey, mainly completed by local individuals, the conclusions of the expert research were confirmed on a smaller scale population. In the individual interviews conducted, new potential uses for the device were discovered as well as potential negative views of the device primarily concerning privacy.

Works Cited

Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance System 2013

YRBS Data User's Guide [Online]. (2016). National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Division of Adolescent and School Health (producer). [Cited 2017 Jan 23].

http://www.cdc.gov/healthyyouth/data/yrbs/pdf/2015/2015_yrbs-data-users_guide_smy_combined.pdf

Insurance Institute for Highway Safety (IIHS). Fatality facts: teenagers 2014. Arlington (VA): The Institute; 2014 [cited 2017 Jan 23].

<http://www.iihs.org/iihs/topics/t/teenagers/fatalityfacts/teenagers>

National Highway Traffic Safety Administration (NHTSA), Dept. of Transportation (US). Traffic safety facts 2014: Young Drivers. Washington (DC): NHTSA; May 2016 [cited 2017 Jan 23] <http://www-nrd.nhtsa.dot.gov/Pubs/812278.pdf>

National Highway Traffic Safety Administration (NHTSA), Dept. of Transportation (US). Traffic safety facts 2014: alcohol-impaired driving. Washington (DC): NHTSA; Dec 2015 [cited 2017 Jan 23]. <http://www-nrd.nhtsa.dot.gov/Pubs/812231.pdf>

Ariane Qin

~Working Mother



Age: 47

Location: Cupertino, CA

Occupation: UX Engineer & Mother of 2

Driving Experience: Licensed in 1988

Car Model: 2013 Toyota Sienna

Driving Use: ~40 times/week

Phone Model: iPhone 7

"I work 2 full time jobs but for only 1 salary. I'm a full time mother and an engineer on the side."

Goals:

- To make sure my children, Matthew and Vanessa, grow up to be good people.
- To win the PTSA bake sale.
- To provide for my children and be a good role model.

Behaviors and Habits:

- Drives son to school at 8 am then directly commutes to work in traffic.
- Leaves work around 4:30 and usually stops at the grocery store on the way home.
- Super organized and scheduling master. Uses phone calendar to organize all family activities and work deadlines.

Technology, Lifestyle, and Skills:

Ariane is an overachieving super mom. She works a 9 to 5 job while parenting 2 children: Matthew and Vanessa. Without her phone, Ariane is lost. She uses it to plan out every minute of her day and requires it to stay on top of her two jobs. Her two children are just as overachieving as herself. Both fill their schedules with extracurricular activities making Ariane's job even harder. Her life has been made a little more flexible because Vanessa just received her driver's license.

Relationships:

Ariane is married to Jacob Qin who together combine to be a power couple. Together, Ariane and Jacob have 2 children: Matthew (10) and Vanessa (16).

Jake Matthews

~Designer and Entrepreneur



Age: 34

Location: Portland, OR

Occupation: Designer

Driving Experience: Licensed in 2002

Car Model: 2003 Ford Escape

Driving Use: ~25 times/week

Phone Model: Samsung Note 4

"I feel like my life is at a stand still right now and I'm ready to move on to new ventures in my career."

Goals

- Design a phone accessory and crowdfund it on Kickstarter.
- Go on a cross country road trip with 5 of my friends.
- To settle down and start a family.

Behaviors and Habits:

- 25 mile daily commute to work.
- Often goes to the local pub with his coworkers after work.
- Has previously been ticketed for speeding and driving under the influence.

Technology, Lifestyle, and Skills:

Jake Matthews is a capable Android user. Because he is a designer, he often uses the stylus of his Note 4 for quick sketches and random ideas. Matthews is a workaholic and often puts his work life in front of his personal life. On weekends, Matthews usually explores the mountain scenery with his friends or can be found reading a book inside a cafe. Being a creative and open individual, Matthews is open to exploring new ideas and chasing his passions. He is a relaxed individual; however, often gets road rage behind the wheel.

Relationships:

Matthews is currently single but has a large network of friends. He is close with his parents; however, can only visit them 1-2 times a year in New York.

Joelle Adams

~Instagram Model



Age: 16

Location: Seattle, WA

Occupation: Junior at West Seattle HS

Driving Experience: New Driver

Car Model: 2015 Honda Accord

Driving Use: ~15 times/week

Phone Model: iPhone 7

"My parents want me back before 10 PM on weekdays and it's really bumming my social life out."

Goals:

- Find a summer job to start saving for college.
- Explore the city of Seattle with friends and find hidden gems.
- Get good grades in school and become an Informatics major at the University of Washington.

Behaviors and Habits:

- Commutes 3 miles to school every day.
- Uses her phone as a GPS, but checks messages only at red lights.
- Performs community service at the local pet shelter.

Technology, Lifestyle, and Skills:

Joelle primarily uses her phone for social media and staying in touch with her friends and family. She has become "instafamous" with over ten thousand followers on Instagram where she posts her daily outfits. Joelle has an iPhone 7 which she never leaves the house with and a Windows laptop. Because Joelle is always pressed for time juggling school, volunteering, and managing her Instagram, she is often sleep deprived and easily annoyed, but highly motivated.

Relationships:

Lives with her parents and 2 brothers. She has 2 dogs and a cat named Mr. Whiskers. Her twin brothers are Seniors at her same High School and make Joelle act as their personal chauffeur even though they have their own licenses. She has a strict curfew of 10 pm on weekdays and 12 am on the weekends.

Larry Lee

~Retired Engineer



Age: 76

Location: Sacramento, CA

Occupation: Retired Engineer

Driving Experience: Licensed in 1959

Car Model: 2007 Mercedes Benz

Driving Use: ~10 times/week

Phone Model: iPhone 6s

"I know it's in good intentions, but my children worry too much about my health. I walk 5 miles a day and finish the daily crossword in the newspaper."

Goals:

- To walk his two daughters down the aisle.
- To travel to Europe and enjoy a nice coffee outside a Paris cafe.
- To watch his 6 grandchildren grow up.

Behaviors and Habits:

- Often walks with his wife Jamie around their neighborhood.
- Drives to his Son's house every Sunday for dinner with their entire family.
- Uses Mapquest to print out directions when driving somewhere new.

Technology, Lifestyle, and Skills:

Larry was forced to turn in his flip phone in exchange for an iPhone 6s by his children. He is only capable of performing simple tasks on his iPhone such as taking pictures, sending a text message, and calling people. Larry loves to play golf with his fellow retired friends and arranges gatherings with them via email. In his free time, Larry is a mentor for high school kids and often teaches a lifeskills class afterschool. Though retired, Larry is as busy as ever balancing his family time and love of service to the community.

Relationships:

Larry has 5 children that are now all grown up. He lives with his wife Jamie in Sacramento, CA and often makes the trip to Fresno, CA to see his grandchildren. Larry's children have begun to worry about his health lately due to a heart attack 6 months ago.