



Trucking in the Era of COVID-19 | CITAMS Pre-Conference

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WEAVE (Preparing the Future **W**orkforce for the **E**ra of **A**utomated **VE**hicles)



WEAVE
Preparing the Future **W**orkforce
for the **E**ra of **A**utomated **VE**hicles

- **WEAVE Goal:**
 - Determine impacts that autonomous vehicles will have on employment in the trucking, taxi, and ride-hailing industries, with the goal of preparing workers for this transition
 - COVID-19
- Michigan State University and Clemson University
- Funded by National Science Foundation



COVID-19 Impacts



26,000,000

number of U.S. Americans that filed for unemployment



49,000

truck drivers lost their jobs during the first two quarters of 2020



30%

growth in e-commerce sales during COVID-19

Trucking and COVID-19

- Trucking industry - nexus of economic and health concerns
- Business closures and manufacturing shutdowns led to reduced demand
 - Certain sectors experienced declines while other sectors succeeded with e-commerce
- Governmental impacts created complications for drivers
 - Truck drivers may be a more vulnerable population
- Uncharted territory for an industry with existing issues
 - Impacts of COVID-19?

Research Objectives

- ▶ To gain a better understanding of the impacts experienced in the trucking industry during the pandemic
- ▶ To examine public perceptions of the trucking industry before and during COVID-19



Methods

Data Collection



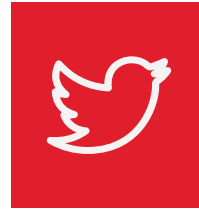
Focus Groups

- ▷ 21 focus groups (N= 42 participants)
- ▷ Questions about the impact of COVID on the trucking industry



Pre-Survey

- ▷ N=42 participants
- ▷ Demographic questions
- ▷ Questions related to COVID-19 and the trucking industry

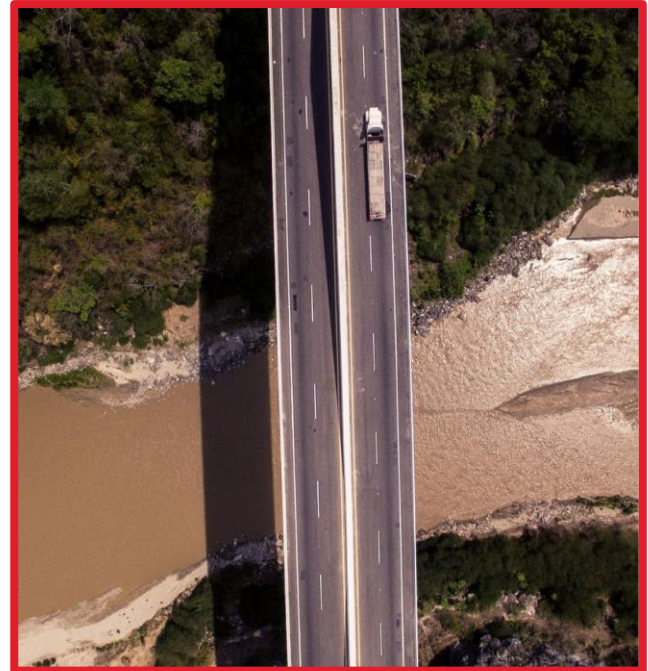


Twitter posts (tweets)

- ▷ N=~190,000 Twitter posts
- ▷ Investigate sentiment of public discourse around trucking on social media pre- and during-COVID

Survey & Focus Group Data Analysis

- ▷ Survey data
 - Descriptive analysis
- ▷ Focus Group Data
 - Thematic Analysis :
 - Review data
 - Develop initial codes
 - Search for themes
 - Review & define themes
 - Inter-Coder Reliability
 - Cohen's kappa > 0.80



Twitter Data

- ▶ Tweets from Feb 28, 2020 to Mar 27, 2020
 - Mar 13, 2020 - declaration of COVID-19 as a national emergency in the U.S.
 - Two-week time window before and after the declaration
 - Tweets from Salesforce Marketing Cloud's Radian6
- ▶ Data filters
 - U.S.-based tweets only
 - Contains keywords: "trucker", "truckers", and "trucking"
 - Excluded keywords: "cap", "hat", and "mother trucker"
- ▶ Determined underlying sentiment of tweets using Salesforce Social Studio's proprietary Sentiment Model
 - Classified tweets as either positive, neutral, or negative

Results

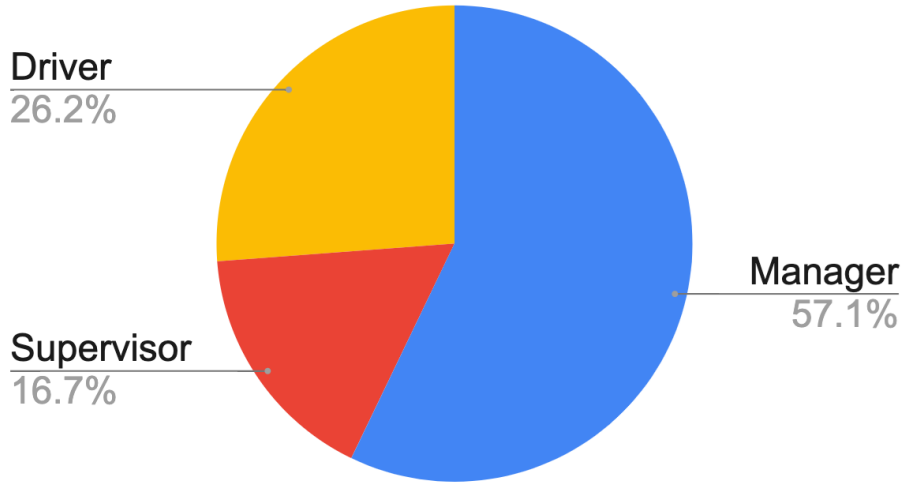
Demographic Information

Sample Characteristics

Age*	
Upper-level Management	Avg. 52 years
Supervisor	Avg. 36 years
Driver	Avg. 47 years
Gender	
Female	4 (9.5%)
Male	38 (90.5%)
Length of Time at Job*	
Upper-level Management	Avg. 257.7 months
Supervisor	Avg. 91.7 months
Driver	Avg. 129.4 months

Participants' age and gender consistent with industry averages.

Participant Employee Type



* Data from pre-survey (N = 40). Missing responses for 1 driver and 1 upper-level manager.

COVID-19 Effects on Work

N (%)

Yes	32 (80)
No	8 (20)
Of those that said yes:	
Increased the stress associated with my work	29 (91)
Increased the health risks associated with my work	20 (63)
Increased the amount of hours/time spent working	18 (56)
Decreased the amount of pay I receive	8 (25)
Decreased the amount of hours/time spent working	5 (16)
Increased the amount of pay I receive	3 (9)
I was laid off from work	2 (6)

COVID-19 Effects on Work

- Main takeaways:
 - Increased stress
 - Increased health risk
 - Limited negative personal economic impacts

* Data from pre-survey (N = 40). Missing responses for 1 driver and 1 manager.

Four Major Themes

- ▷ Industry Changes
- ▷ Company Adaptability
- ▷ Company response
- ▷ Impacts on drivers



Theme 1: Industry Changes



In the US, buying habits have changed a lot since COVID.

*People aren't spending as much on experiences, like travel and entertainment, and restaurants...**they're spending more on durable goods for their home...so all that stuff has to be shipped.** - Manager*

Industry changes

- ▷ Shifts in consumer buying trends
- ▷ COVID-19 changed the daily operations in the trucking industry due to supply chain disruptions
 - Vendor work shortages
 - Inability to ship due to mandatory shutdowns
- ▷ Shift from just-in-time freight

“Our priority is in buying and rushing stuff right now.” - Manager

Theme 2: Company adaptability



"When COVID first said it was only essential goods, which is not office furniture and not hot water heaters. So, they [dispatch and backhaul employees] quickly, quickly, it was impressive, switched over to brokered freight.... like getting into other competitors' markets." - Driver

Company adaptability

- ▶ Variability in freight volume
 - Initial decrease
 - Rebounded or increased after time
- ▶ Pivoted business models
 - Different markets
- ▶ Temporary fixes
 - Unemployment
 - Reserves
 - Adjusting policies

*"The business probably slowed down a little bit initially, but in the last few months **we're actually busier than we have been in probably the last year.**" - Manager*

Theme 3: Company response



*"When the governor, **when we got the shutdown, we stayed open as an office, but we locked ourselves out. Our dispatchers, load planners, and everybody else, we came in.** Our billing and up-front workers, they did split shifts here. **But we did lock the drivers from ... because they're traveling all over the country.**" - Supervisor*

Company response

- ▶ Varying responses from employees
 - Scared vs. skeptical of severity
- ▶ Employee-focused companies
- ▶ New business protocols
 - Isolated, divided work environments
 - Separate standards for drivers

*"We've got guys who don't think it's a real thing, we've got guys who's overly serious about it. So right now, the climate that **we're in is just trying to manage all of these new things.**" - Supervisor*

Theme 4: Impacts on drivers



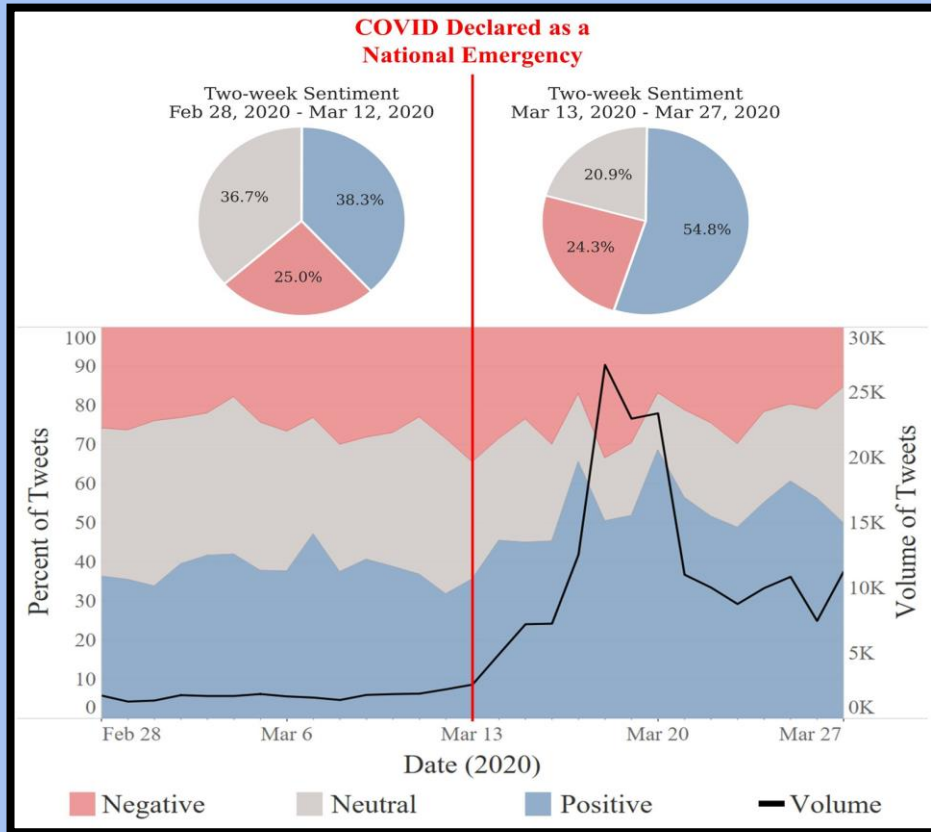
“Truck drivers were America’s heroes as this pandemic started because we deliver toilet paper to the stores. I’m serious. People were going to grocery stores and panicking because the shelves were empty, and truck drivers were heroes. I said, ‘Well, we need to enjoy it while it lasts because it won’t take long... our reputation will get tarnished again, just by the mere fact that there’s a bad perception.’” - Manager

Impacts on drivers

- ▶ Changes in quality of life
 - U.S. closures of rest areas and businesses
 - Threats to personal safety
- ▶ Vendor protocols
 - Restricted social interactions
 - Need for contactless delivery
- ▶ Changes in public perceptions

*“You were talking about the COVID-19, even with the vaccines, **I heard nothing mentioned about truck drivers getting the vaccine. I’m like, wow, we’re front line, front and center. If it wasn’t for us, you wouldn’t even have the vaccine.**” - Driver*

Public Perception on Twitter



- ▷ **Sharp increase in volume of tweets following the declaration**
 - Increase in public attention towards truckers and the overall trucking industry
- ▷ **Higher positive sentiment of tweets during-COVID compared to pre-COVID**
 - More positive during COVID-19
 - Support findings from the focus groups

DISCUSSION AND CONCLUSION

Discussion



Impact 1: Fluctuation in revenue depending on sector.



Impact 2: Job security was not a main concern during COVID-19



Impact 3: Pivoting to new markets as key to success



Impact 4: Truck driving jobs were less vulnerable to negative, personal economic impacts



Impact 5: Decreases in driver morale and heightened stress



Impact 6: Improved public perception of truck drivers

Future Research



Examine a national sample from the trucking industry with proportionate organizational representation of employee types and genders

Further study the impacts of COVID-19 on:

- **Need for technology**
- **Business operations**
- **Public perception of drivers**
- **Driver retention and shortages**

Will employees reenter the trucking workforce, or transition to new careers outside of the transportation industry?

COVID-19 and Automation

- ▷ Need for contactless delivery
 - Spurred by e-commerce growth
 - Help with driver shortage
 - Speed up autonomous vehicles development
- ▷ Technology-related trainings
- ▷ Cost pressure and consolidation of AV efforts
 - Differs amongst sectors
- ▷ Long-term impacts unclear

Conclusion

- ▷ Unclear what the aftermath of COVID-19 will hold for the trucking industry and the country
- ▷ Positive vs. negative changes
 - E-commerce
 - Supply chain disruptions
- ▷ Trucking industry kept America running during an unprecedented time in history
 - **Through pivoting, adapting, and the country's support, the trucking industry was able to survive COVID-19**
 - Will the general public remember the efforts of truck drivers?

Thanks!

Questions and Discussion

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