Methods of Transcription and Their Effects on Memory

Team 2

OUR TEAM

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AGENDA

01. Introduction

02. Experimental Design

03. Results Analysis

04. Limitations & Conclusions

01. Introduction

Background

Research Question & Hypothesis

Background and Prior Research

Smoker, Murphy, and Rockwell (2009)

Participants had better recognition and recall of words when asked to write them verse typing them

Mueller and Oppenheimer (2014)

Students who took notes by hand performed better on conceptual questions than students who took notes on a laptop

“Do you find memory retention better when you copy-and-paste or type information?”

Our Hypothesis

Users who copy and paste information are less likely than users who type information to remember what they have learned.

Our Hypothesis

01.

"Copy & Paste" (C&P) condition -
Survey participants can copy and paste the answer to the questions based on the block of text that they need to read

"Typing" (T) condition -
Text is presented as a picture and participants have to type in the information that is asked of them

02.

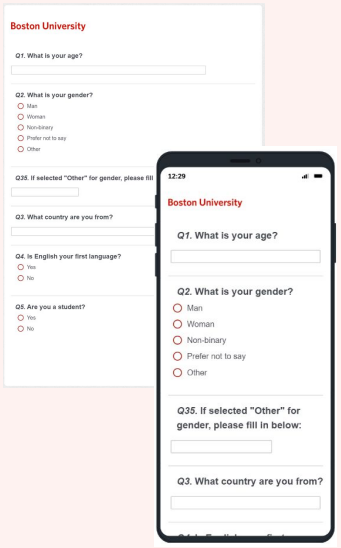
02. Experimental Design

Qualtrics Workflow

Survey Design

Qualtrics Workflow

- Default Question Block
  - Treatment Group
    - Excerpt 1, Transcription and Distraction Questions
    - Excerpt 2, Transcription and Distraction Questions
  - Control Group
    - Excerpt 1, Transcription and Distraction Questions
    - Excerpt 2, Transcription and Distraction Questions
- Excerpt 1 Comprehension
- Excerpt 2 Comprehension
- Survey Evaluation

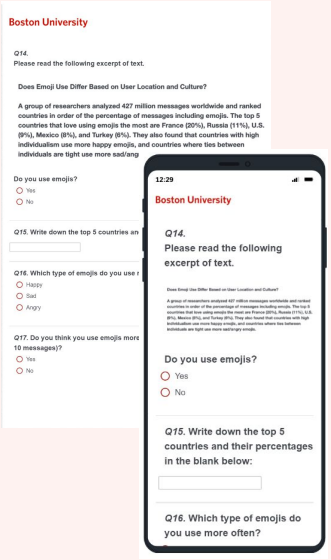


Qualtrics Workflow

Personal Information

- *What is your age?*
- *What is your gender?*
- *What country are you from?*
- *Is English your first language?*
- *Are you a student?*

Block 01



Block 02

Qualtrics Workflow - Excerpt I

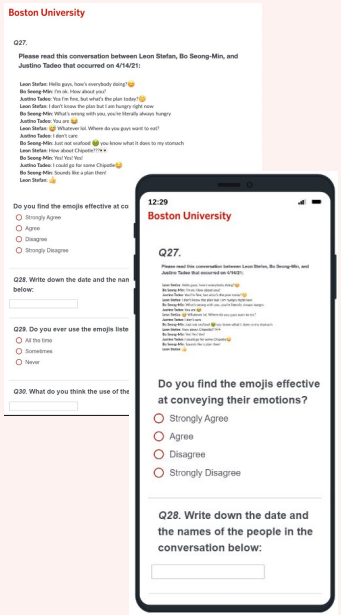
Does Emoji Use Differ Based on User Location and Culture?

*... The top 5 countries that love using emojis the most are **France** (20%), **Russia** (11%), **U.S.** (9%), **Mexico** (8%), **and Turkey** (6%) ...*

Write the top 5 countries and their percentages in the blank.

Q1: Which country uses emojis the most?

Q2: What was the highest percentage of emoji use exhibited in the study?



Qualtrics Workflow - Excerpt II

Please read this conversation between Leon Stefan, Bo Seong-Min, and Justino Tadeo that occurred on 4/14/21:

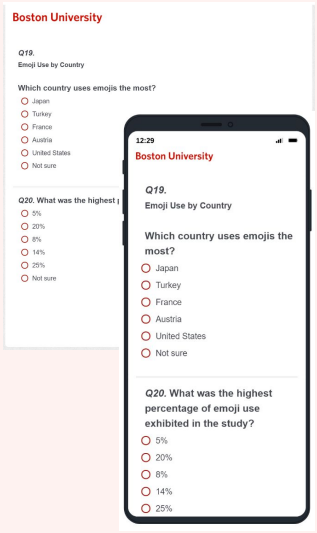
Leon Stefan: Hello guys, how's everybody doing? 😊
Bo Seong-Min: I'm ok. How about you?
Justino Tadeo: Yea I'm fine, but what's the plan today? 🧐
...

Block 03

Write the date and the names of the people in the conversation.

Q3: Who was in the lunch conversation?

Q4: When did the food conversation happen?



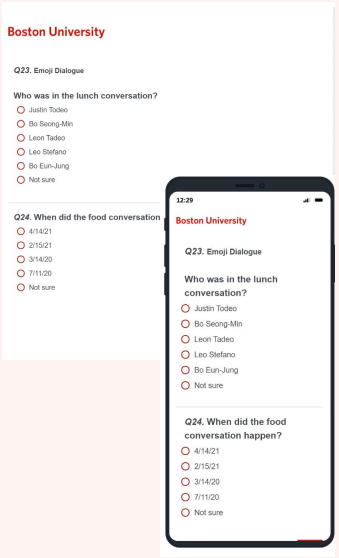
Qualtrics Workflow

Emoji Use by Country

1. Which country use emojis the most?
2. What are the highest percentage of emoji use exhibited in the study?

*... The top 5 countries that love using emojis the most are **France (20%), Russia (11%), U.S. (9%), Mexico (8%), and Turkey (6%)** ...*

Block 04



Qualtrics Workflow

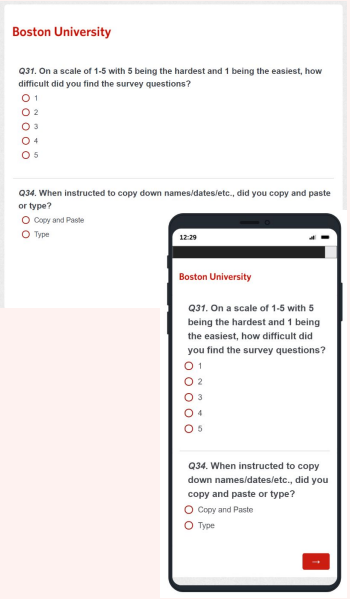
Emoji Dialogue

1. Who was in the lunch conversation?
2. When did the food conversation?

Block 05

Please read this conversation between Leon Stefan, Bo Seong-Min, and Justino Tadeo that occurred on 4/14/21:

Leon Stefan: Hello guys, how's everybody doing? 😊
Bo Seong-Min: I'm ok. How about you?
...



Qualtrics Workflow

1. On a scale of 1-5 with 5 being the hardest and 1 being the easiest, how difficult did you find the survey questions?
2. When instructed to copy down names/dates/etc., did you copy and paste or type?

Block 06

03. Results Analysis

Randomization Checks

Treatment Effects

Pilot Stage

- Pilot survey sent to 10 MSBA batchmates
  ➡ Received 10 valid responses within 48 hours

	Average Accuracy
6 assigned to Control (T)	91.7%
4 assigned to Treatment (CP)	68.8%

3

Distribution Channels

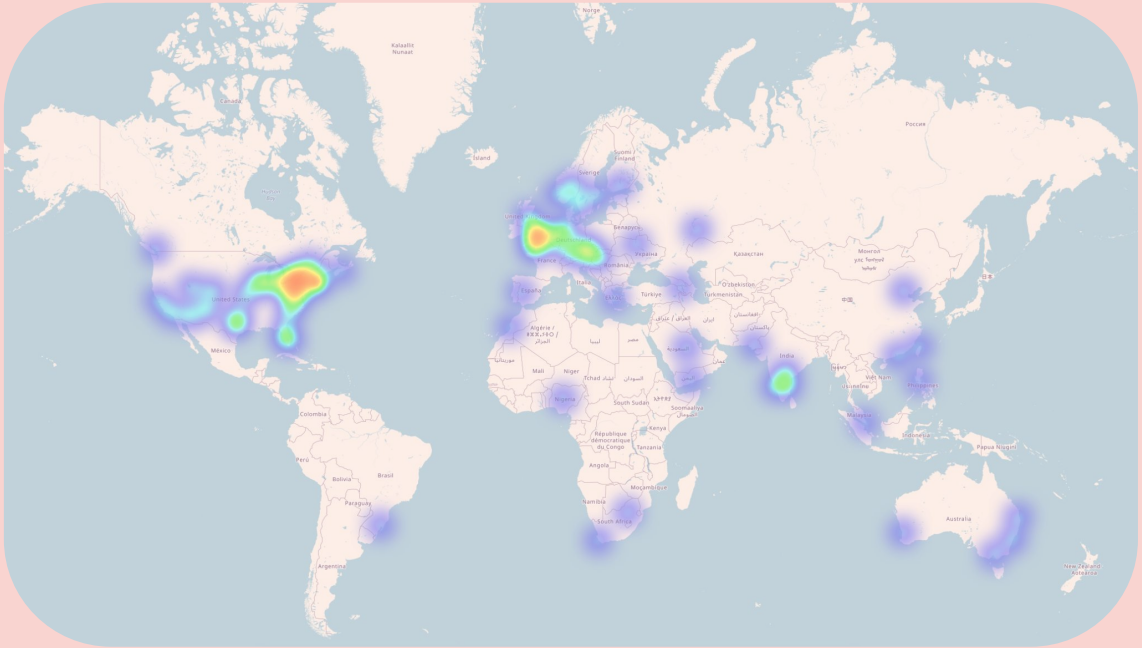
140

Valid Responses

58% - 42%

Control (T) – Treatment (CP)

Survey Participants

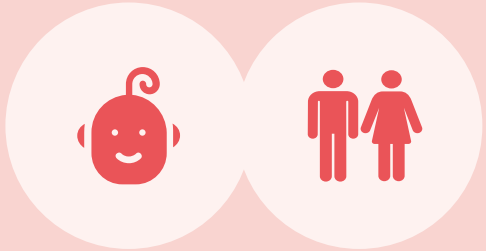


- Australia
- Austria
- Belgium
- Brazil
- Canada
- China
- Czech Republic
- Denmark
- Ecuador
- England
- Estonia
- Finland
- Germany
- Greece
- Hungary
- India
- Indonesia
- Iran
- Ireland
- Italy
- Malaysia
- Morocco
- Netherlands
- Nigeria
- Norway
- Pakistan
- Peru
- Philippines
- Poland
- Puerto Rico
- Russia
- Scotland
- Singapore
- Slovenia
- South Africa
- South Korea
- Spain
- Sweden
- Taiwan
- Turkey
- Ukraine
- United Kingdom
- United States
- Wales
- Yemen
- Zimbabwe

Randomization Checks

Age

Control	25.6
Treatment	27
p-value	**0.37**

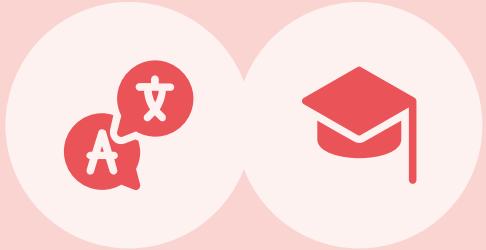


Gender

Man
Woman
Agender
Non-binary
Prefer not to say

Native in English

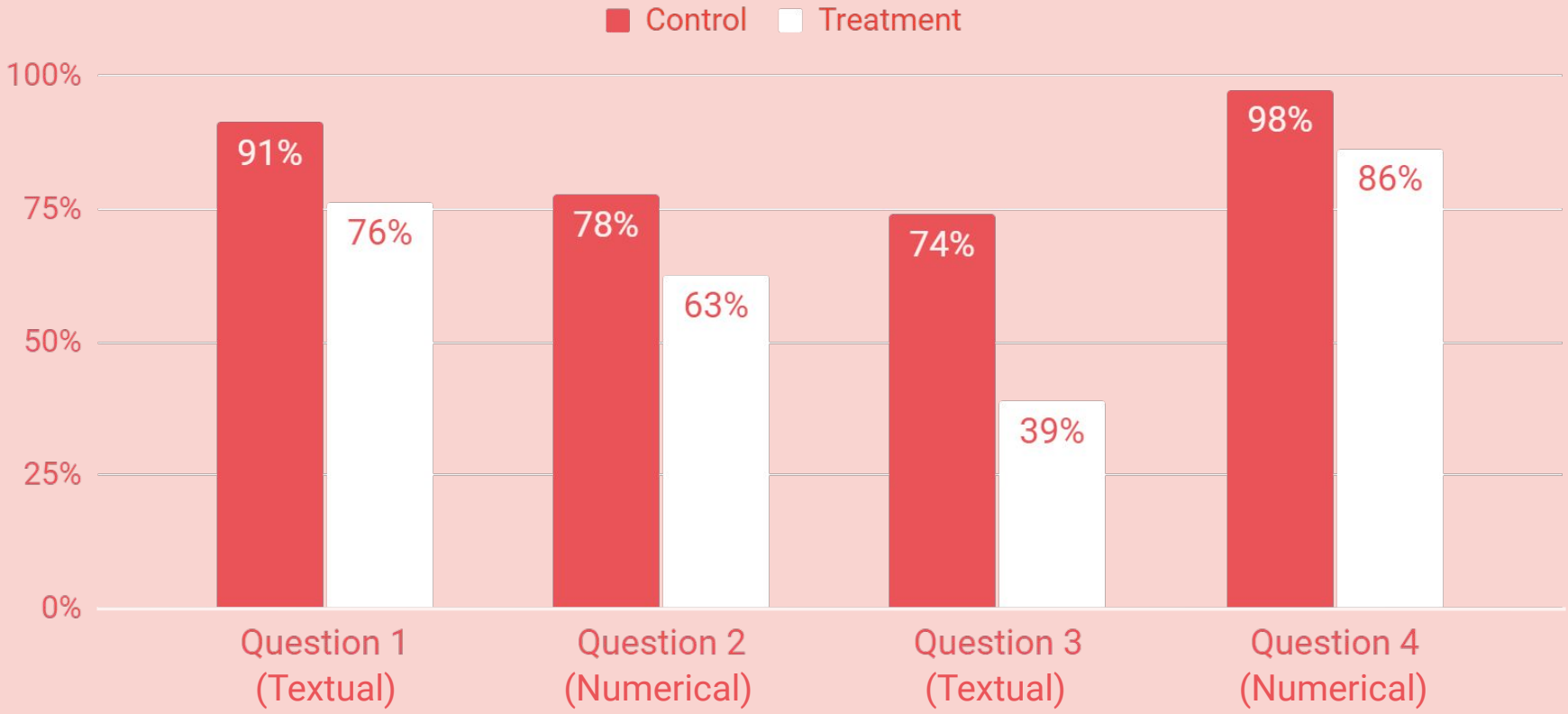
Control	53%
Treatment	59%
p-value	**0.47**



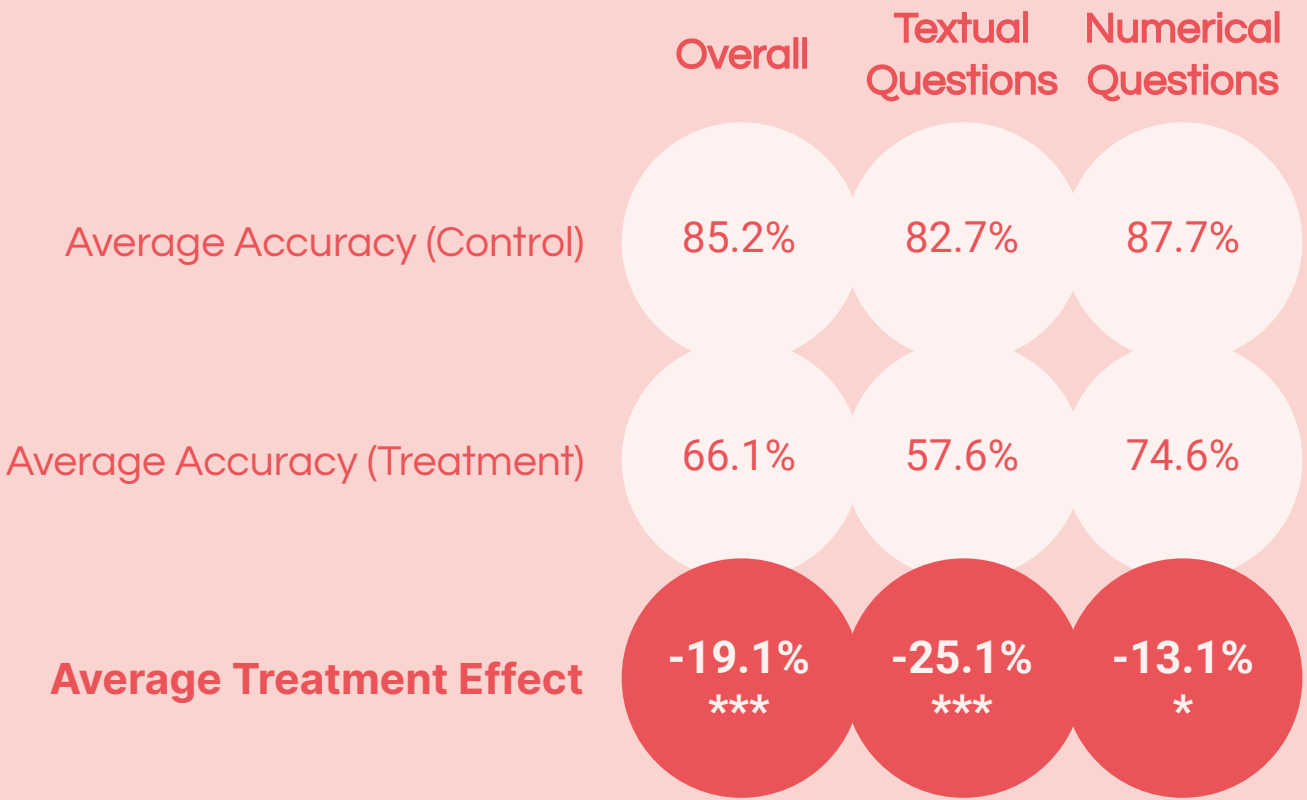
Student Status

Control	65.4%
Treatment	67.8%
p-value	**0.78**

Average Accuracy



Average Treatment Effect



59/81

Survey takers (T/C)

4/55

Non-compliers/Compliers

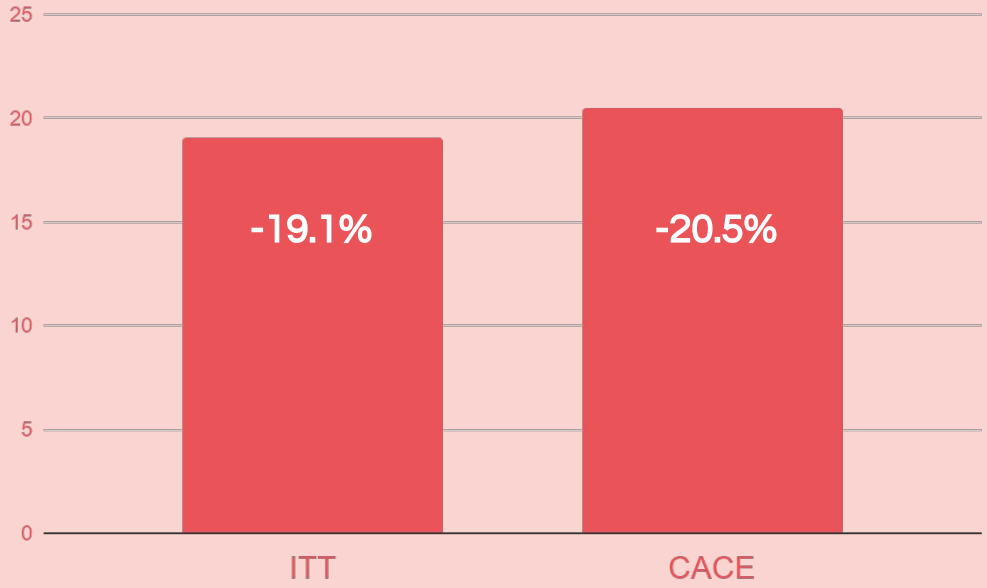
93.2%

Compliance rate

Complier Average Causal Effect

	Overall	Textual Questions	Numerical Questions
Average Accuracy (Control)	85.2%	82.7%	87.7%
Average Accuracy (Treatment)	64.7%	55.8%	73.6%
Complier Average Causal Effect	-20.5% ***	-26.9% ***	-14.0% **

Results Analysis



-1.39%

Complying treatment group had a -1.39% lower accuracy score when compared with overall treatment

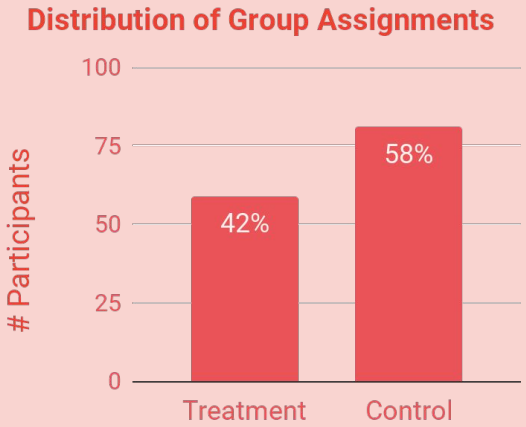
04. Conclusions

Limitations

Conclusions

Limitations

1. Randomization



Statistical Power - 98.2%

2. Possible Spillovers

3. Missing Covariates

Conclusions

Average Treatment Effect (or ITT)	-19.1%***
Compliance Rate (α)	93.2%
Complier Average Causal Effect (CACE)	-20.5%***
CACE (Text Questions)	-26.9%***
CACE (Numeric Questions)	-14.0%**
Statistically Significant Covariates	NONE

Bibliographical References

- *Smoker TJ, Murphy CE, Rockwell AK. Comparing Memory for Handwriting versus Typing. Proceedings of the Human Factors and Ergonomics Society Annual Meeting. 2009;53(22):1744-1747. doi:10 .1 17 7/ 15 41 93 12 09 05 30 22 18*

- *Mueller PA, Oppenheimer DM. The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking. Psychological Science. 2014;25(6):1159-1168. doi:10 .1 17 7/ 09 56 79 76 14 52 45 81*

Thank you
Q & A