

# Using Automation to Enhance Reproducibility and Reduce Error in Large Scale Survey Administration

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# Overview

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- Why automate survey processes?
- Overview of example surveys
  - BNS3
  - SNAP RCT
- Time saved by automation
- Best practices and lessons learned
- Questions



# Why Automate?

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- The Center for Healthy Communities (CHC) – grant-funded research center associated with CSU, Chico
  - Focuses on nutrition education, active living, food justice, and health equity work
  - 30+ active grants and contracts
  - Research & Evaluation (R&E) team
    - 2-4 full-time staff
    - 4-6 part-time (5-20 hrs/week) staff
    - Limited funding and resources
  - Research participant compensation
    - Built into our grants and contracts
    - *Very* time-consuming



# Scope of Surveys

## **SNAP RCT survey (Oct-Dec 2023)**

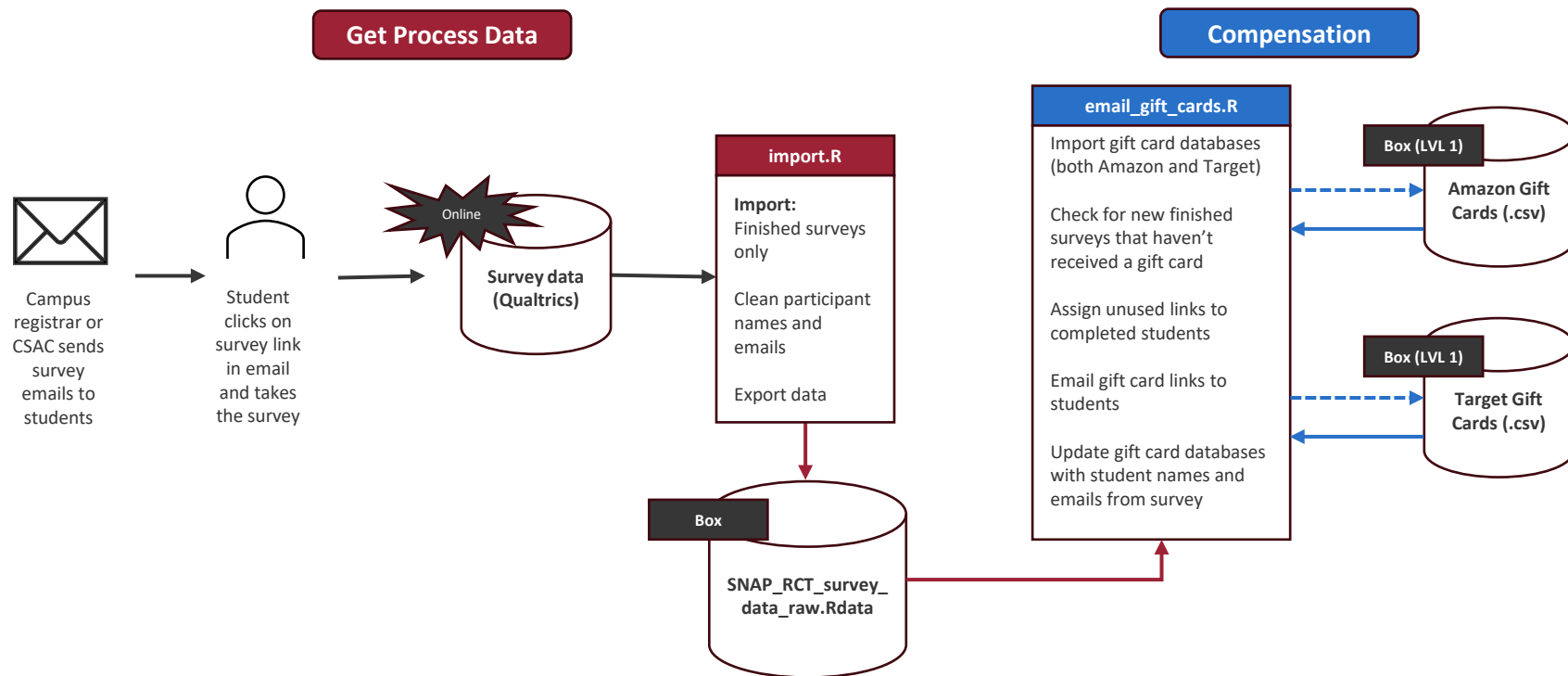
- Purpose: randomized control trial to evaluate stigma-reducing messaging about CalFresh (SNAP) benefits among college students
- College registrar and/or California Student Aid Commission (CSAC) sent out a single survey link to 64314 students
- 5030 participants at 60+ colleges completed the survey and needed to be sent a gift card
- Typical survey administration

## **BNS3 survey (Mar 2022-Apr 2023)**

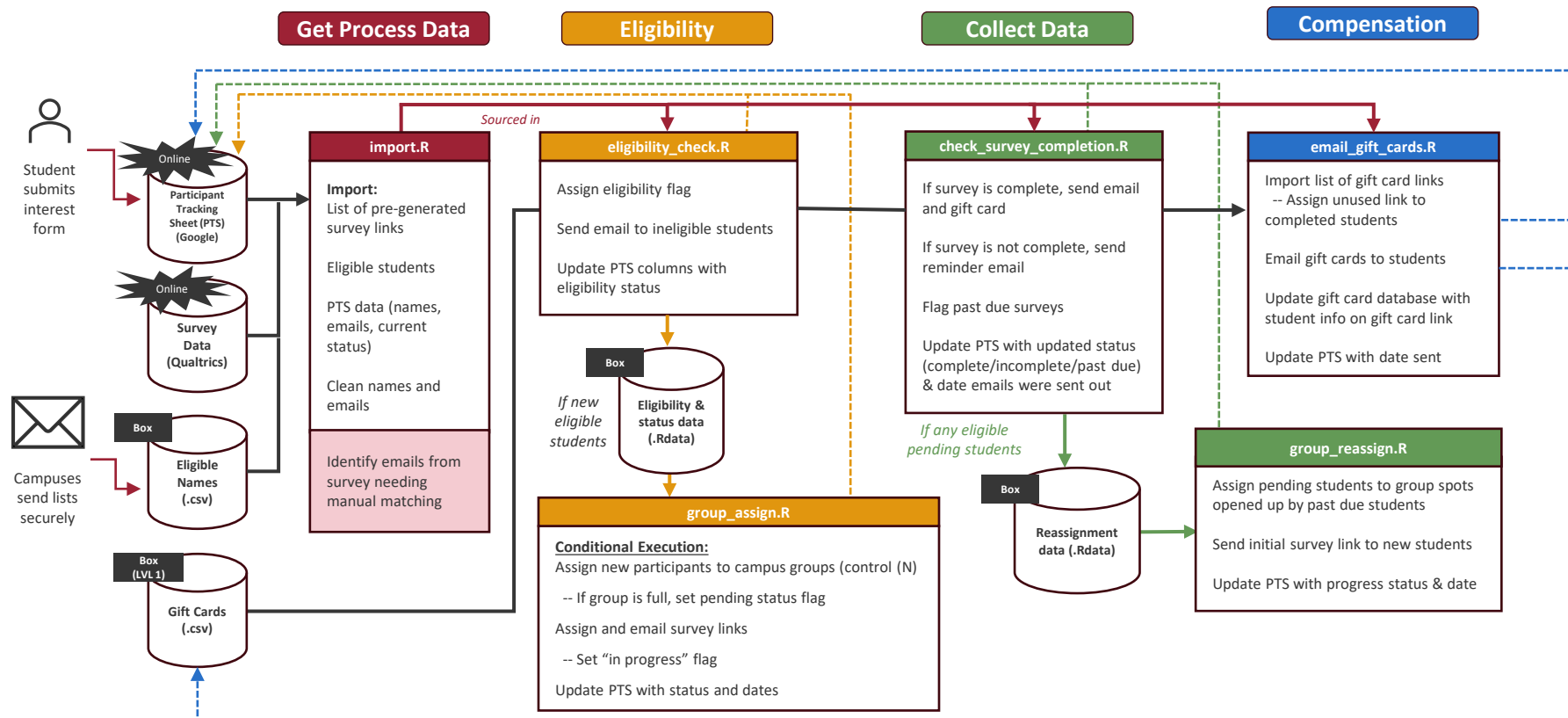
- Purpose: evaluate college student food insecurity and the impact of/barriers to receiving CalFresh (SNAP) benefits
- 6706 college students filled out an interest form in Google that needed to be screened for eligibility
- CHC sent out 3322 unique survey links to eligible students
- 1924 completed the survey and needed to be sent a gift card
- Added layer of eligibility checking



# SNAP RCT Survey Workflow ( $n = 5030$ )



# BNS3 Survey Workflow ( $n = 6706$ )



# Time Saved – BNS3 Survey (Mar 2022-Apr 2023)

<b>BNS3 - Without Script</b>	<b>Minutes</b>	<b>Times Needed</b>	<b>Total</b>
Perform one eligibility check against statewide survey eligibility forms	4	6706	26824
Send one ineligible email	2.5	3384	8460
Pull one Qualtrics link, mark the link as used, and send email containing survey link to one student	5	3322	16610
Assess participant tracking form for survey deadline coming up and send one survey reminder email	3	3290	9870
Check Qualtrics and match completed surveys with the participant tracking form (PTF) by email, update the survey complete column in the PTF, pull gift card link, update gift card as "used" in tracking form, and email gift card link to recipient	5	1905	9525
Update gift card reporting sheet with required info	1.5	1905	2857.5
Overall setup and close-out steps (e.g., logging in, opening docs, downloading data, etc.)	30	30	900
<i>Total minutes</i>			75046.50
<i>Total hours</i>			1250.78
<i>FTE conversion</i>			0.60

<b>BNS3 - With Script</b>	<b>Minutes</b>	<b>Times Needed</b>	<b>Total</b>
Script development	19200	1	19200
Time to complete all steps in running the scripts	120	30	3600
<i>Total minutes</i>			22800
<i>Total hours</i>			380
<i>FTE conversion</i>			0.18
<i>FTE saved from using scripts</i>			0.42
<i>Reduction in FTE over 30-week data collection period</i>			70%

30 weeks represents active data collection during the academic year



# Time Saved – SNAP RCT Survey (Oct-Dec 2023)

SNAP RCT - Without Script	Minutes	Times Needed	Total
Check Qualtrics data against gift card tracking sheets for duplicate responses, pull unused gift card link, and email gift card link with personalized email message to recipient	5	5030	25150
Update gift card reporting sheet with required info	1.5	5030	7545
Overall setup and close out steps (e.g., logging in, opening docs, downloading data, etc.) per week	30	12	360
<i>Total minutes</i>			33055
<i>Total hours</i>			550.92
<i>FTE conversion</i>			0.26

SNAP RCT - With Script	Minutes	Times Needed	Total
Script development	2400	1	2400
Time to complete all steps in running the scripts	60	12	720
<i>Total minutes</i>			3120
<i>Total hours</i>			52
<i>FTE conversion</i>			0.025
<i>FTE saved from using scripts</i>			0.24
<i>Reduction in FTE over 12-week data collection period</i>			91%





# Best Practices and Lessons Learned

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- Keep it as simple as possible
  - Use existing code, tracking documents, etc. when possible
- Include human error reduction in the setup cost analysis
  - But understand that some human error can (and usually will) still occur with automation
    - E.g., pause scripts until humans can review email drafts for correctness
- Build in plenty of time for testing
- Know your organization and/or grant's policy on gift card purchasing and tracking



# Best Practices and Lessons Learned (Continued)

- Check for any usage limits within the automation process
  - Example: most Gmail accounts have a 1000 email per day limit
- Avoid holidays and common break/vacation times when scheduling key dates
- Expect working with outside groups (IT, grants office, gift card retailers, etc.) to take at least twice as long as you expect
- Acknowledge that not all human error can be automated around
  - E.g., student typos in emails



# Github Repository

Scan the QR code to visit our Github repository

## **Repository link:**

<https://github.com/ChicoCalFresh/JSM-2024>

***Contains:*** sample gift card automation code, JSM presentation slides



# Acknowledgements

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