


Introduction to Online Experiments Using Facebook

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Political Methodology Lab & Political Experiments Research Lab Workshop
MIT
April 9, 2021



Overview

Part I

1. Using Facebook ads to recruit respondents: a few examples
2. Recruiting diverse samples using quota sampling with Facebook ads

Part II

1. How to set up Facebook ads:
 - Ad creative
 - Targeting
 - Optimizing for “conversions”
2. FAQs
 - Estimating costs
 - Survey mode: Qualtrics vs. Chatbot
 - To incentivize or not?

Part I

Using Facebook advertisements
to recruit respondents

Facebook “field” experiment

Research design: Online field experiment (A/B test)

Page: Partner’s Facebook page (@MzalendoWatch)

Target population: Kenyans on FB 18+

Ad targets: 18-34/35+, m/f

Dates: July 2-5, 2015

Budget: \$3,000

Clicks: 31,136 unique visitor to the Mzalendo page

Cost per click: \$0.10

Mzalendo Sponsored

Click here

Looking for a better job?
Click here

INFO.MZALENDO.COM
Looking for a better job?

554 24 Comments 14 Shares

Like Comment Share

What is our Government doing about youth unemployment?

70 percent of unemployed Kenyans are between the ages of 15 and 35. Are you one of them?

Read the national youth employment bill that proposes a new Government Authority to help people find jobs.
Give us your comments!

What is our Government doing about unemployment?

40 percent of Kenyans are unemployed. Are you one of them?

Read the new bill that proposes a new Government Authority to help people find jobs.
Give us your comments!

Outcomes of interest

	# of Actions
Comment	671
Share on Facebook	535
Read the bill	1105
Share on Twitter	150
Total	2461

Team and Nation: Sports, Nationalism, and Attitudes Toward Refugees

L. Rosenzweig & YY. Zhou (*Comparative Political Studies*, 2021)

Mode: Qualtrics survey (23 min)

Page: Princeton/MIT Academic Survey (@PrincetonMITSurvey)

Target population: Kenyans and Tanzanians on FB 18+

Ad targets: country-wide and location-based

Dates: June 12-26, 2019

Budget: \$1,960

Sample size: 2,647 respondents

Cost per completed survey: \$0.05 - \$5.38 (mean = \$0.74)

Incentives: \$0.50 baseline, \$1 endline

Table S1: Descriptive statistics of all study respondents

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Median	Pctl(75)	Max
Female	2,647	0.26	0.44	0	0	0	1	1
Age	2,645	27.00	6.20	18.00	23.00	26.00	30.00	68.00
Education Level	2,645	6.00	1.30	0.00	6.00	6.00	7.00	8.00
Urban	2,644	0.73	0.44	0.00	0.00	1.00	1.00	1.00
Lived Out Length	2,610	0.26	0.67	0.00	0.00	0.00	0.00	4.00
Knows Refugee	2,606	0.49	0.50	0.00	0.00	0.00	1.00	1.00
Employment	2,608	1.60	0.80	0.00	1.00	1.00	2.00	3.00
Household Wealth	2,647	3.70	2.20	0	1	4	6	7
Voted	2,647	0.71	0.45	0	0	1	1	1
Political	2,607	0.44	0.50	0.00	0.00	0.00	1.00	1.00
Religion	2,333	1.20	0.78	1.00	1.00	1.00	1.00	6.00
Religiosity	2,301	3.30	1.50	0.00	3.00	3.00	4.00	6.00

PM AS Princeton/MIT Academic Survey Sponsored · ✨

Burudika na dodoso. Pata malipo!

Burudika na dodoso la dakika 20. Pata malipo!

MIT.CO1.QUALTRICS.COM
Fun online survey!
Please give us your opinions in t... [LEARN MORE](#)

Happiness and Surprise are Associated with Worse Truth Discernment Of Covid-19 Headlines Among Social Media Users in Nigeria. L. Rosenzweig, B. Bago, A. Berinsky & D. Rand (*Working Paper*)

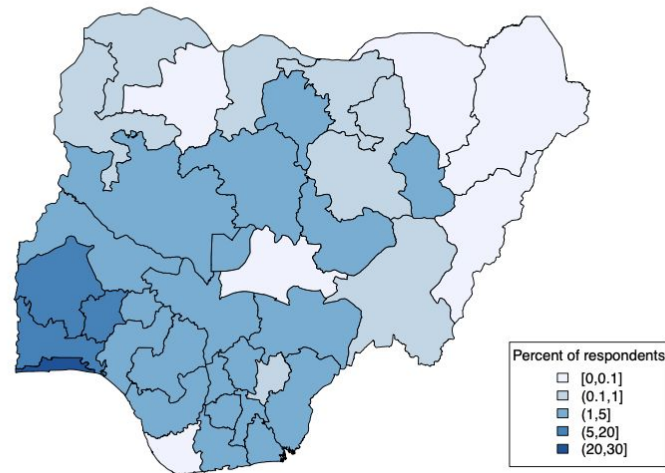
Mode: Qualtrics survey (22 min)
Page: Princeton/MIT Academic Survey (@PrincetonMITSurvey)
Target population: Nigerians on FB 18+
Ad targets: m/f
Budget: \$203
Dates: April 1-3, 2020
Clicks: 2,698 clicks → 1,341 completed surveys
Cost per completed survey: \$0.15
Incentives: 500 NGN ~ \$1.30

PM AS Princeton/MIT Academic Survey Sponsored · ✨
 Bored at home? Take our survey
 MIT.CO1.QUALTRICS.COM
 20 minute research survey for realtime
 LEARN MORE

Table A1: Descriptive statistics of study respondents

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Median	Pctl(75)	Max
Female	1,325	0.32	0.47	0.00	0.00	0.00	1.00	1.00
Age	1,321	28.00	7.00	18.00	22.00	26.00	31.00	62.00
Some university	1,321	0.76	0.43	0.00	1.00	1.00	1.00	1.00
Urban	1,297	0.80	0.40	0.00	1.00	1.00	1.00	1.00
Employed	1,316	0.49	0.50	0.00	0.00	0.00	1.00	1.00
Christian	1,316	0.76	0.43	0.00	1.00	1.00	1.00	1.00
Religiosity	1,298	3.20	0.99	0.00	3.00	4.00	4.00	4.00
Voted	1,318	0.45	0.50	0.00	0.00	0.00	1.00	1.00
APC supporter	1,341	0.11	0.31	0	0	0	0	1
Daily FB user	1,314	0.74	0.44	0.00	0.00	1.00	1.00	1.00

Percent of Respondents from each State in Nigeria



Optimal Policies to Battle the Coronavirus “Infodemic” Among Social Media Users in Sub-Saharan Africa

M. Offer-Westort, L. Rosenzweig & S. Athey (PAP: <https://osf.io/ny2xc/>)

Mode: Messenger bot survey (~25 min)

Page: Social Impact Research Initiative

Target population: Nigerians and Kenyans 18+

Ad targets: above/below avg. adult age in each country, m/f

Budget: \$1040

Dates: February 26 - March 20, 2021

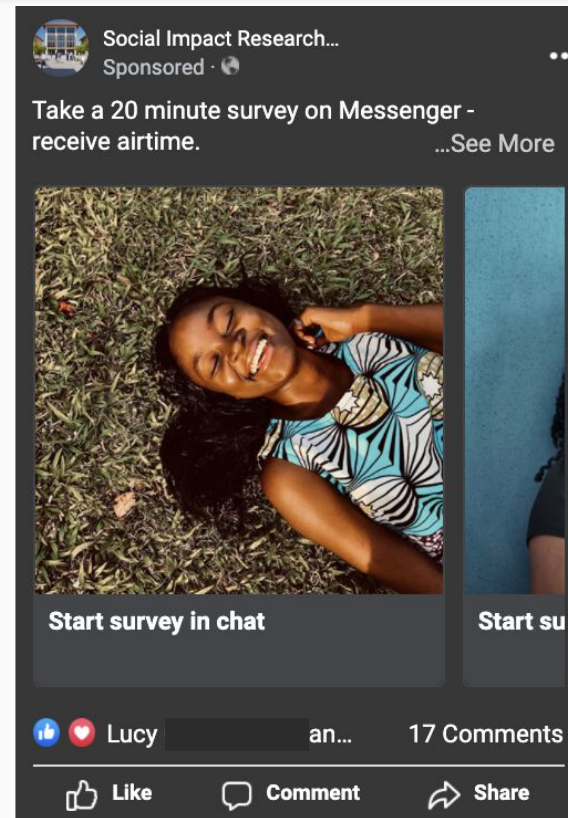
Messages started: 16,166

Completed surveys: 9,750

Cost per completed survey: \$0.11

Incentives: 50 KES/200 NGN ~ \$0.50

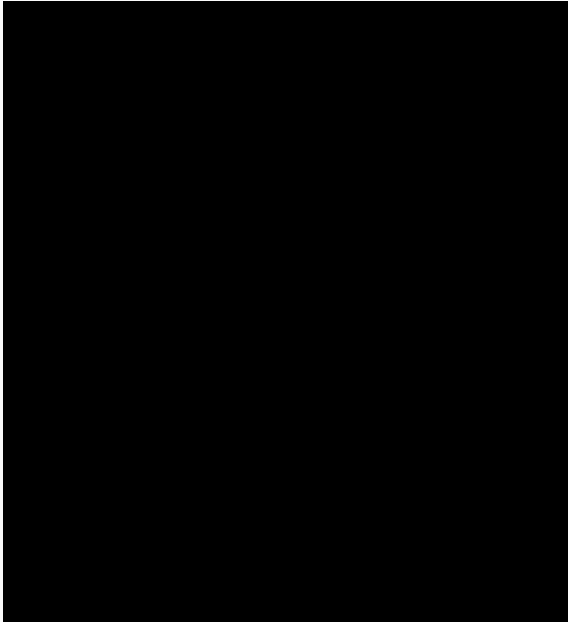
Mean age: 28
53% male



The image shows a screenshot of a Facebook post from 'Social Impact Research...' which is a sponsored advertisement. The ad text reads: 'Take a 20 minute survey on Messenger - receive airtime. ...See More'. Below the text is a photograph of a smiling woman lying on grass. At the bottom of the ad, there are two buttons: 'Start survey in chat' and 'Start su'. Below the ad, the Facebook interface shows a comment from 'Lucy' and 'an...' with '17 Comments'. At the very bottom, there are icons for 'Like', 'Comment', and 'Share'.

Optimal Policies to Battle the Coronavirus “Infodemic” Among Social Media Users in Sub-Saharan Africa

M. Offer-Westort, L. Rosenzweig & S. Athey (PAP: <https://osf.io/ny2xc/>)



Quality/Quantity: An Assessment of Facebook for Respondent Recruitment in Kenya and Mexico

Leah R. Rosenzweig, Parrish Bergquist,
Katherine Hoffmann Pham, Francesco
Rampazzo, & Matto Mildemberger



Motivation

Opportunity for Online Surveys



- 67% of the world's population has a mobile phone subscription
- 49% has access to internet
- Online surveys can be fast + affordable
- Quality results?

Facebook as a Social Science Tool



2.5 billion monthly active users as of September 2019

Microtargeting through the platform

- Polish migrants (Potschke & Braun 2017)
- East Africans (Rosenzweig & Zhou 2021)
- COVID-19 behavior (Grow et al. 2020)

Research Question

Can quota sampling using Facebook advertisements deliver quality results?

Quality

Internal validity:

- Does Facebook effectively identify respondents of interest? ✓
- Are the responses valid? ✓

External validity:

- Can all subgroups of interest be reached? ✗
- Are users who respond similar to those who didn't take the survey? ✓
- Are units independently sampled? ✗



Data & Results

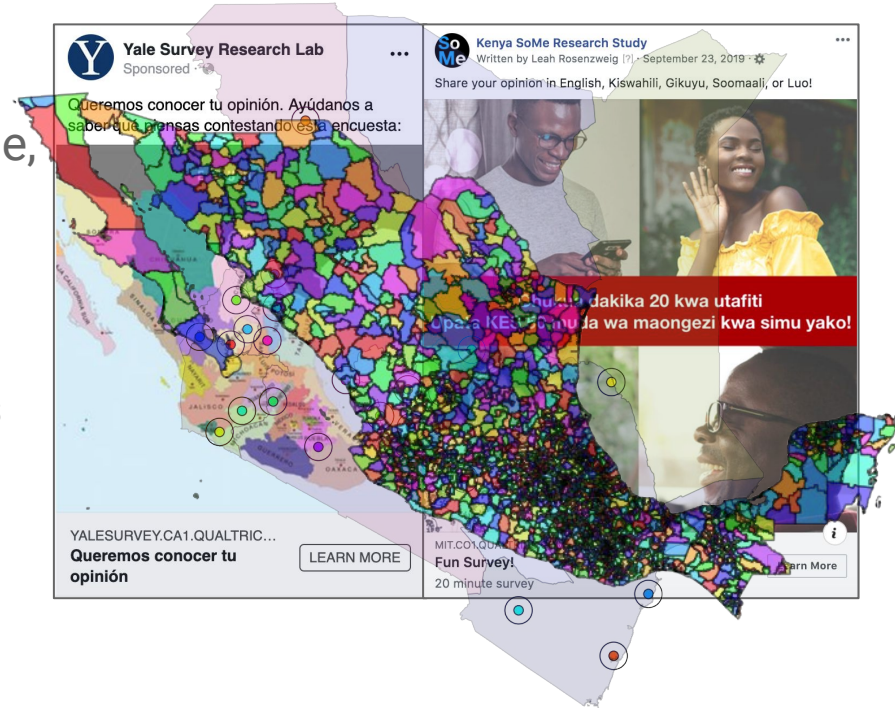
Recruitment

Mexico

- Strata: gender, age, education, administrative unit
- Climate change
- N=5,168

Kenya

- Strata: gender, age, education, Afrobarometer clusters
- Political attitudes
- N=1,452



Internal Validity

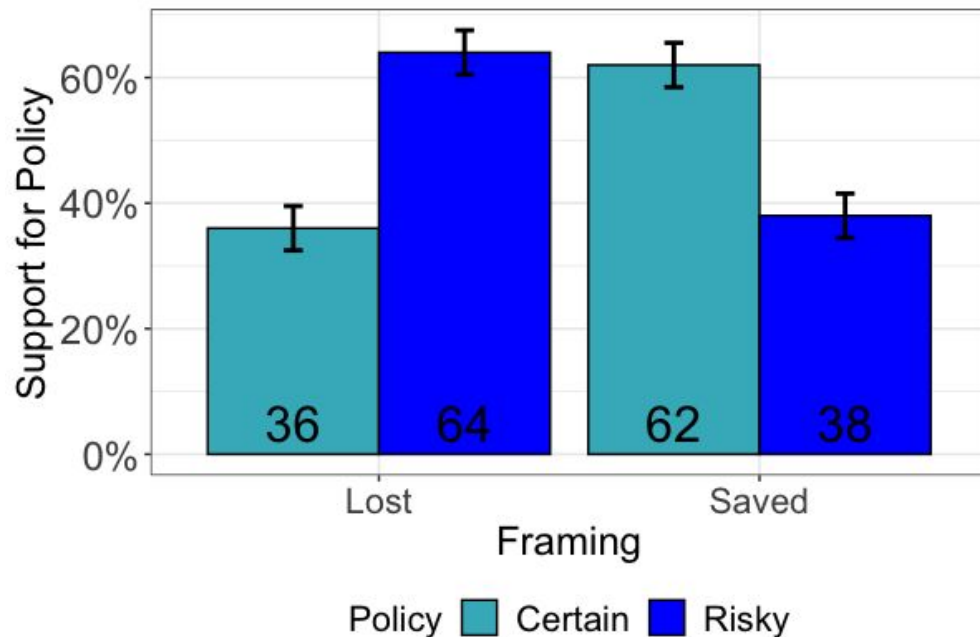
- Targeting accuracy: % match (survey vs. Facebook)
- Attention checks: In Kenya, 98% pass easy check

	Mexico	Kenya
Gender	98	90
Location	67	63
Age	87	47*

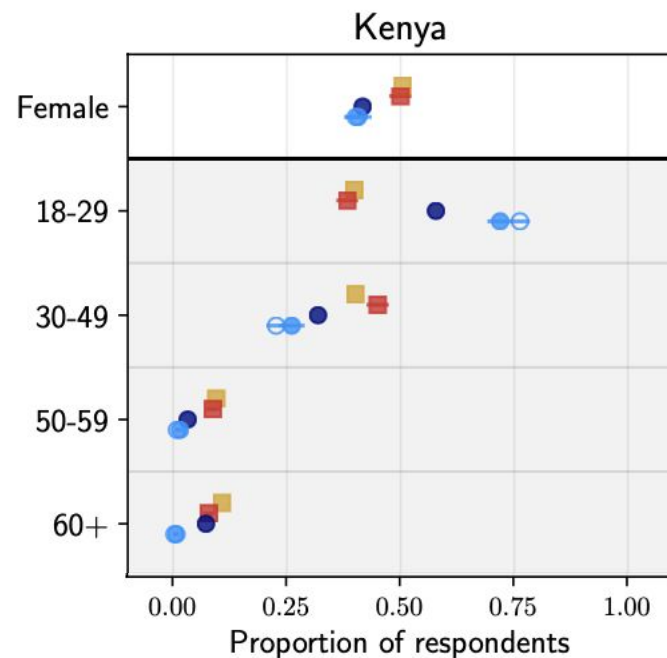
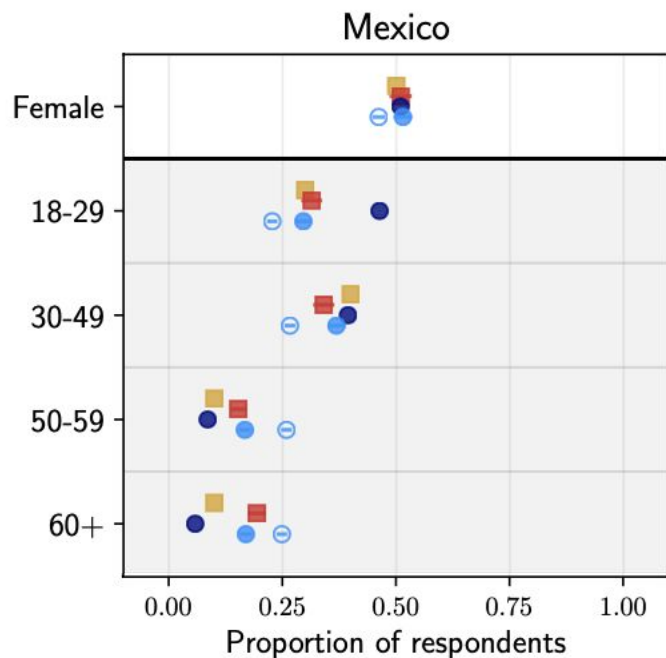
*targeting 32+

Internal Validity

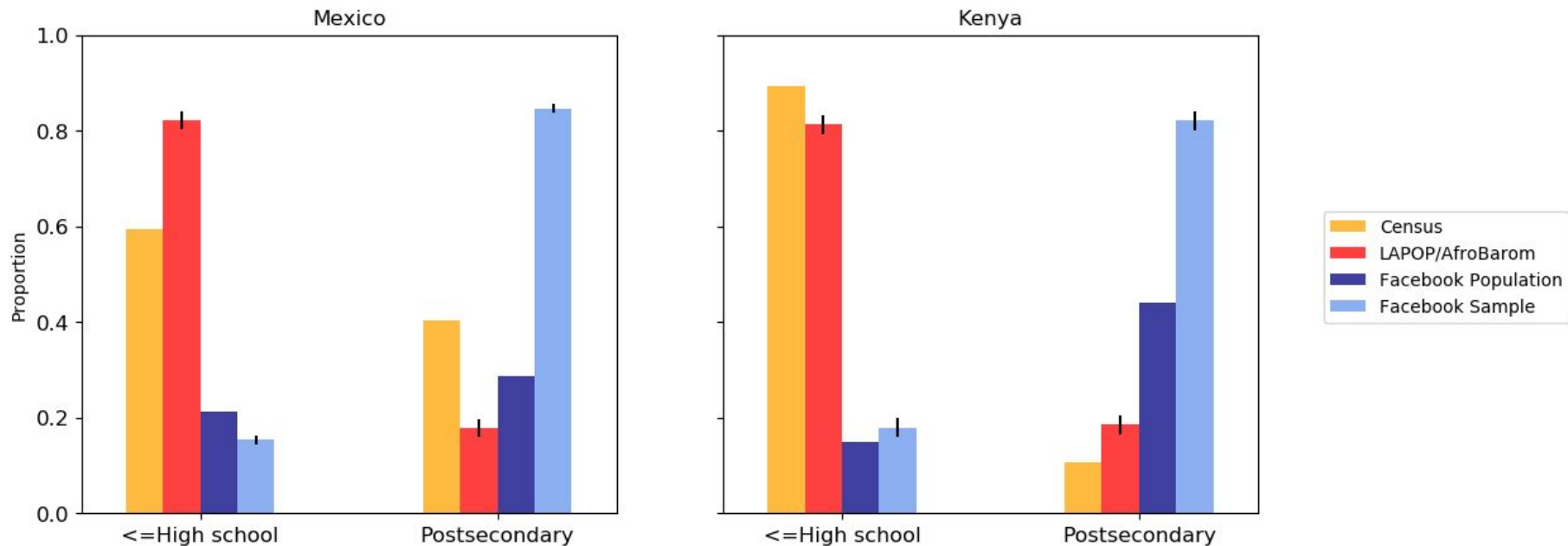
In Kenya, we replicate the finding from Tversky & Kahneman (1981)



External Validity – Demographics



External Validity – Demographics



Cost

Costs are **low but variable** and depend on **targeting criteria**

		Mexico	Kenya
Reach		439,056	318,960
Survey results		5,313	1,211
Total spent		\$847.76	\$1,293.91
Cost per survey	Min	\$0.07	\$0.05
	Median	\$0.13	\$1.15
	Max	\$0.55	\$22.07

Conclusions

Facebook can **diversify audiences** beyond MTurk and lab samples

- Relatively **cheap and quick** to recruit
- Rich **targeting** capabilities

This comes with **costs**:

- Some strata **cannot be filled** + “**expensive**” to reach certain populations
- Targeting **accuracy is mixed**
- **Selection bias** with respect to national **and** Facebook population
- The platform is **not design with researchers in mind**

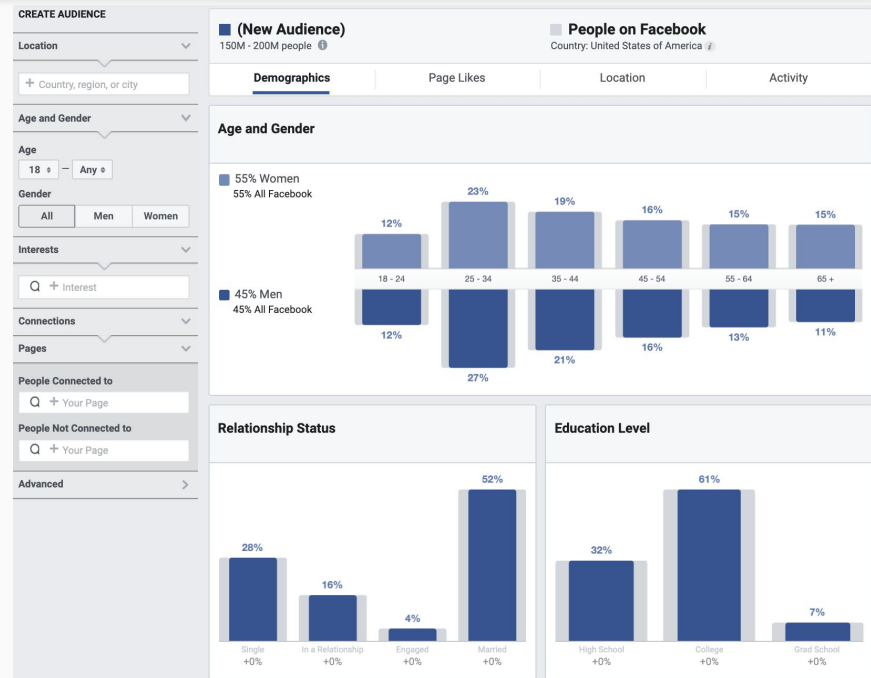
Part II

How to use Facebook
advertisements to recruit
respondents

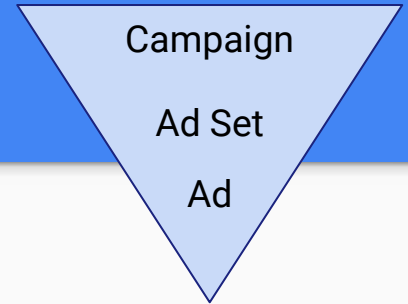
Is Facebook right for this project?

Can I reach the people I want in an affordable way?

- Depends on your question of interest and target population
- Internet/phone access and country-level regulations (social media tax, FB restricted, etc.) that may make Facebook a suboptimal tool for recruitment.
- Make sure your target group is accessible using audience estimates and FB API
 - Audience insights:
<https://www.facebook.com/ads/audience-insights>



Setting up your ads



1. Create/select the Facebook page you want to send ads from
2. Decide how many ads/ad sets you want to run. *Are there variables you want to balance?*
 - a. You'll need a different "Ad Set" for each target *audience*
 - b. You can also set a different budget and timeline for each Ad Set
3. Set your daily budget (> *lifetime budget*)
4. Adding text and images to your ad
5. Add the "call to action" and link (*where do you want to send people who click on your ad?*)
6. Have Facebook optimize your ads for your desired outcome (e.g., completed surveys)

Setting up your ads

- Set up the campaign and objective

Campaign Name [Create Name Template](#)

Traffic

Special Ad Categories Off


You're required to declare if your ads are related to credit, employment or housing opportunities or related to social issues, elections or politics. [Learn More](#)

Campaign Details

Auction

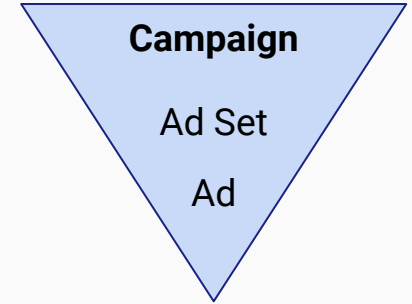
Campaign Objective

Awareness	Consideration	Conversion
<input type="radio"/> Brand awareness	<input type="radio"/> Traffic	<input checked="" type="radio"/> Conversions
<input type="radio"/> Reach	<input type="radio"/> Engagement	<input type="radio"/> Catalog sales
	<input type="radio"/> App installs	<input type="radio"/> Store traffic
	<input type="radio"/> Video views	
	<input type="radio"/> Lead generation	
	<input type="radio"/> Messages	



Conversions

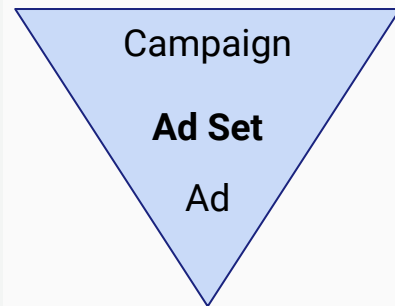
Show your ads to people most likely to take valuable actions, like making a purchase or adding payment info, on your website, app or in Messenger.



Setting up your ads

- Set up the campaign and objective
- Set up your ad set(s)
 - Conversion
 - Budget and Schedule
 - Audience

**You'll need a different Ad Set for each target audience. You can also set a different budget and timeline for each Ad Set*



Audience
Define who you want to see your ads. [Learn More](#)

[Create New Audience](#) Use Saved Audience ▾

Custom Audiences Create New ▾

Q Search existing audiences

Exclude

Locations
Location - Living In:
• Tanzania

Age
18 - 65+

Gender
All genders

Ad Set Name [Create Name Template](#)

Africa Cup - TZcountry

Conversion 1 See updates

Conversion Event Location

Website

App

Messenger
Send people from ads into Messenger conversations with your business. Your ad will be shown to people more likely to open Messenger.

WhatsApp
Send people from ads into WhatsApp conversations with your business, then track conversion events, such as website visits and app activity.

Audience Definition

Your audience selection is fairly broad.

Specific Broad

Potential Reach: 5,400,000 people ⓘ
Your criteria is currently set to allow detailed targeting expansion. ⓘ

Estimated Daily Results

Reach ⓘ
136K - 392K

Link Clicks ⓘ
1.9K - 5.6K

Dynamic Creative Off

Provide creative elements, such as images and headlines, and we'll automatically generate combinations optimized for your audience. Variations may include different formats or templates based on one or more elements. [Learn More](#)

Budget & Schedule

Daily Budget
\$150.00 USD

Actual amount spent daily may vary. ⓘ
Hide graph of estimated reach and results ▾

Estimated Daily Link Clicks

\$150 Budget 3.3K Link Clicks ▾

Daily Link Clicks

Budget Per Day

These are estimates and don't guarantee results. ⓘ
[Were these estimates helpful?](#)

The accuracy of estimates is based on factors like past campaign data, the budget you entered, market data, targeting criteria and ad placements. Numbers are provided to give you an idea of performance for your budget, but are only estimates and don't guarantee results.
Estimates may change as people update to iOS 14. [Learn More](#)
[Were these estimates helpful?](#)

Budget & Schedule

Budget

Daily Budget \$20.00 USD

Actual amount spent daily may vary. ⓘ

Schedule ⓘ

Start Date
Apr 8, 2021 6:16 PM Eastern Time

End - Optional
 Set an end date


[Show More Options ▾](#)

Setting up your ads

- Set up the campaign and objective
- Set up your ad set(s)
 - Conversion
 - Budget and Schedule
 - Audience
- Adding text and images to your ad
 - Stock photos: pixabay/pexels
- Add the “call to action” and link (*where do you want to send people who click on your ad?*)

Ad Creative
Select the media, text, and destination for your ad. You can also customize your media and text for each placement. [Learn More](#)

Media Clear All

 Screen Shot 2019-06-15 at 9.46.50 AM.png
1472 x 1550

Edit Placement

Primary Text

Headline · Optional

Description · Optional

Destination

Website

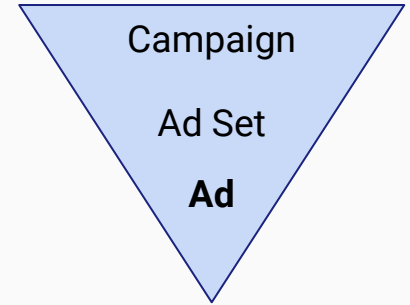
Facebook Event

Website URL

[Build a URL Parameter](#)

Display Link · Optional

Call to Action




Preview On

14 Placements View More Variations

Facebook Feeds

Feeds

Stories



Princeton/MIT Academic Survey
Sponsored · 18

Burudika na dodoso. Pata malipo!

Burudika na dodoso la dakika 20.
Pata malipo!

MIT.CO1.QUALTRICS.COM
Fun online survey!
Please give us your opinions in L...

Ad creatives matter

YOUR GENDER AND RACE MIGHT BE DETERMINING WHICH FACEBOOK ADS YOU SEE

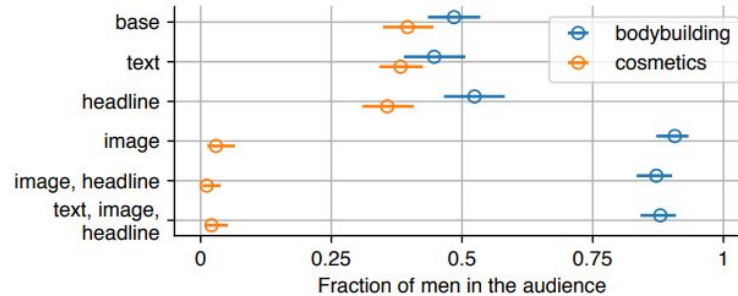


Fig. 3. “Base” ad contains a link to a page about either bodybuilding or cosmetics, a blank image, no text, or headline. There is a small difference in the fraction of male users for the base ads, and adding the “text” only decreases it. Setting the “headline” sets the two ads apart but the audience of each is still not significantly different than that of the base version. Finally, setting the ad “image” causes drastic changes: the bodybuilding ad is shown to a 91% male audience, the cosmetics ad is shown to a 5% male audience, despite the same target audience.

Tracking which ads respondents come from

Facebook

Tracking

[See updates](#)

Track event datasets that contain the conversions your ad might motivate. The dataset that contains the conversion selected for the ad account will be tracked by default.

Website Events

• Africacup Pixel

Pixel ID:

⚠ Your Facebook Pixel Is Not Active

It looks like you need to reactivate your Facebook pixel. Check your pixel settings in Events Manager to make sure you've set it up correctly.

[Learn more](#)

App Events

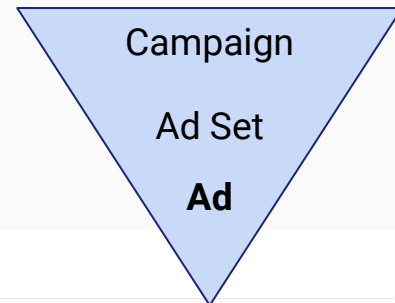
Offline Events **i**

[Set Up](#)

URL Parameters · Optional

Source=TZcountry&Q_Language=SW

[Build a URL Parameter](#)



Qualtrics

Survey Flow Africa Cup - Tanzania Survey - Baseline

Set Embedded Data:

ipaddress The value for Embedded Data field ipaddress is left blank intentionally to prevent issues with survey metadata.

Q_BallotBoxStuffing Reserved Embedded Data fields cannot have custom values.

Q_TotalDuration Number Value will be set from Panel or URL. [Set a Value Now](#)

StartDate Value will be set from Panel or URL. [Set a Value Now](#)

Q_URL Reserved Embedded Data fields cannot have custom values.

Referer Reserved Embedded Data fields cannot have custom values.

LoginID = `${rand://int/1000000000:999999999}`

Period = `GreenPink`

EndDate = `${e://Field/EndDate}`

Source = `${l://SurveyLink?d=Take%20the%20Survey}`

[Add a New Field](#)

[Add Below](#) [Move](#) [Duplicate](#) [Add From Contacts](#) [Options](#) [Delete](#)

Tracking conversions (completed surveys) with Facebook pixel

Optimization & Delivery

Optimization for Ad Delivery

Link Clicks ▾

Value

Conversions

Landing Page Views

Other Options

Link Clicks, Daily Unique Reach and Impressions

event, it will appear in the Results and Cost per Res

Cost Control (optional)

\$X.XX

Facebook will aim to spend your entire budget and get the lowest cost bid strategy. If you want to set a cost control

Show More Bid Strategies ▾

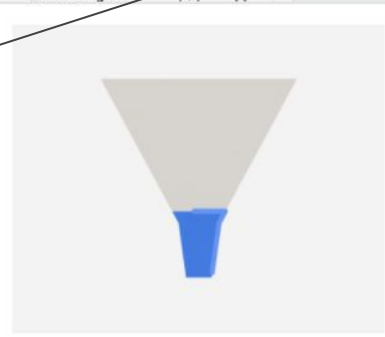
Hide Options ▲

When You Get Charged

Link Click (CPC)

Delivery Type

Standard

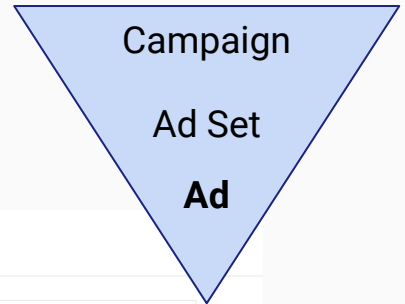


Conversions

We'll deliver your ads to the right people to help you get the most website conversions.

Lower Funnel: Drive decision-making from people showing the most intent. If you've had at least 25 conversions in the past week, you can start a campaign here.

If you don't want to set up a pixel and optimize for completed surveys, you probably want to instead optimize (and get charged) for *link clicks*



Edit Question JavaScript

```
Qualtrics.SurveyEngine.addOnLoad(function()
{
  /*Place your JavaScript here to run when the page loads*/
});

Qualtrics.SurveyEngine.addOnReady(function()
{
  /*Place your JavaScript here to run when the page is fully displayed*/

  function(f,b,e,v,n,t,s)
  {if(!t.fbq)return;n=f.fbq=function(){n.callMethod?
  n.callMethod.apply(n,arguments):n.queue.push(arguments)};
  if(!t._fbq)_fbq=n.push=n.loaded=!0;n.version='2.0';
  n.queue=[];t=createElement(e);t.async=!0;
  t.src=v;s=b.getElementsByTagName('script')[0];
  s.parentNode.insertBefore(t,s)}(window, document,'script',
  'https://connect.facebook.net/en_US/fbevents.js');
  fbq('init', 'XXXXXXXXXXXXXXXXXXXX');
  fbq('track', 'PageView');
});

Qualtrics.SurveyEngine.addOnUnload(function()
{
  /*Place your JavaScript here to run when the page is unloaded*/
});
```

JS Question API

Full Screen

Clear

Cancel

Save

Monitoring ad quotas and metrics

<https://business.facebook.com/adsmanager>

Campaigns 2 Selected Ad Sets for 2 Campaigns Ads for 2 Campaigns

[+ Create](#) [Duplicate](#) [Edit](#) [A/B Test](#) [Rules](#) [View Setup](#) [Columns: Custom](#) [Breakdown](#) [Reports](#)

<input type="checkbox"/>	Ad Set Name	Bid Strategy	Budget	Last Significant Edit	Attribution Setting	Results	Reach	Impressions
<input type="checkbox"/>	kenya-country	Lowest cost Conversions	Using campaig...	Jun 15, 2019, 1:5... 663 days ago	28-day click o...	112 completed survey	36,216	44,411
<input type="checkbox"/>	Africa Cup - TZcountry	Lowest cost Link Clicks	\$150.00 Daily	Jun 25, 2019, 10... 653 days ago	28-day click o...	1,041 completed survey	642,947	1,303,440
> Results from 2 ad sets				—	28-day click o...	1,153 completed survey	678,019 People	1,347,851 Total

Campaigns 2 Selected Ad Sets for 2 Campaigns Ads for 2 Campaigns

[+ Create](#) [Duplicate](#) [Edit](#) [A/B Test](#) [Rules](#) [View Setup](#) [Columns: Custom](#) [Breakdown](#) [Reports](#)

<input type="checkbox"/>	Ad Set Name	Cost per Result	Amount Spent	Ends	Schedule	Link Clicks	Web Purc
<input type="checkbox"/>	kenya-country	\$1.02 Per completed survey	\$114.36	Jun 26, 2019	Jun 12, 2019 – Jun 26, 2019 15 days	501	
<input type="checkbox"/>	Africa Cup - TZcountry	\$0.79 Per completed survey	\$818.38 of \$818.38	Apr 9, 2021	Jun 12, 2019 – Apr 9, 2021 668 days	14,724	
> Results from 2 ad sets		\$0.81 Per completed survey	\$932.74 Total Spent			15,225 Total	

Easier way to create many ads

Campaigns

+ Create Duplicate Edit A/B Test Preview Rules

<input type="checkbox"/>	<input type="checkbox"/>	Ad Name	Delivery ↑	Export
<input type="checkbox"/>	<input type="checkbox"/>	Africacup - Image 4 - Copy	Account Error	All
<input type="checkbox"/>	<input type="checkbox"/>	Africacup - Image 2 - Copy	Account Error	Selected
<input type="checkbox"/>	<input type="checkbox"/>	Africacup - Image 3	Account Error	Customize Export >
<input type="checkbox"/>	<input type="checkbox"/>	Africacup - Image 1	Account Error	Import
<input type="checkbox"/>	<input type="checkbox"/>	Africacup - Image 4	Account Error	Ads
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Africacup - Image 4	Account Error	Download Excel Template

0 active ads

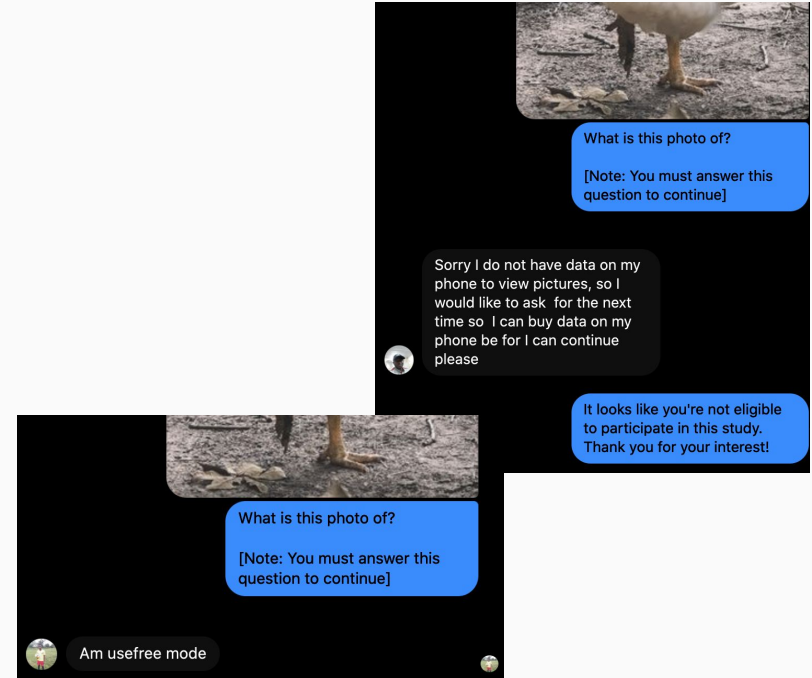
AJ	AQ	AR	AV
Link	Countries	Cities	Addresses
https://princetonurvey.az1.qualtrics.com		Garissa, North Eastern Province, Kenya +50mi	
https://mit.co1.qualtrics.com/jfe/form/S		Kigoma, Kigoma, Tanzania +25mi	(-4.807562, 30.360718) +39mi
https://princetonurvey.az1.qualtrics.com KE			
https://princetonurvey.az1.qualtrics.com KE			
https://mit.co1.qualtrics.com/jfe/form/S		Kigoma, Kigoma, Tanzania +25mi	(-4.807562, 30.360718) +39mi
https://mit.co1.qualtrics.com/jfe/form/S		Kigoma, Kigoma, Tanzania +25mi	(-4.807562, 30.360718) +39mi
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FAQs

1. How to estimate ad costs?
 - a. **Best:** run a pilot with your survey, ads, and targets.
 - b. **2nd best:** try to estimate costs based on other research in similar context [function of incentive, survey length, targeting, ad creatives, and market!]
2. Survey mode: Qualtrics vs. Chatbot?
 - a. Qualtrics better for complicated flows and randomizations
 - b. Messenger bot better if you want to easily recontact people (panel) and debrief attriters!
3. To incentivize or not?
 - a. Upside: quicker to get respondents
 - b. Downside: sharing links across ads (particularly problematic if you are trying to reach only a particular subgroup)

Tips

1. Create your campaign/ads a couple of weeks before you plan to run your survey.
 - Each ad is review by Facebook. It can take anywhere from a few hours to several days for your ads to be approved and ready to go live!
2. Add screeners for image/video treatments
 - E.g. include a photo at the beginning of the survey and make sure respondents can view the image and correctly identify it.
3. Include a few attention checks (as you would for a Mturk study) that range in difficulty level.



Challenges

Targeting:

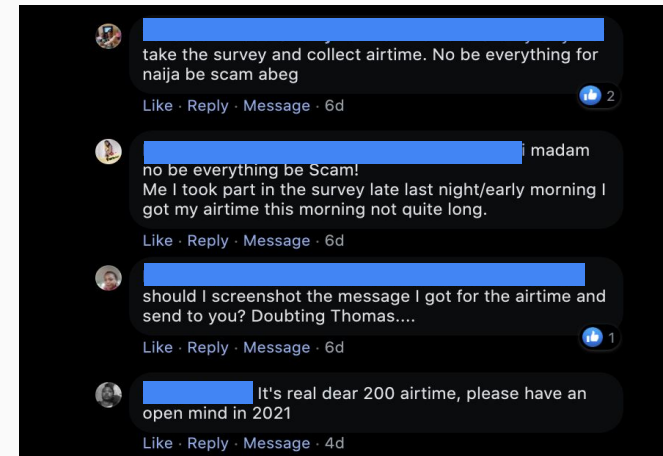
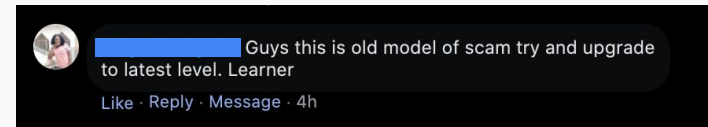
- Geographic units are not standardized/vary by country and sometimes out of date (e.g. regions rather than counties in Kenya)
- Created with US system in mind (i.e., education levels)
- FB estimates are sometimes wrong

Bad actors: Repeat respondents and fake pages

Paying respondents: Automating incentive payment

- One solution: [Africa's Talking](https://github.com/LeahRosenzweig/sending_airtime) - https://github.com/LeahRosenzweig/sending_airtime

Moderating ad comments:



Concluding thoughts

Design of Facebook ads for respondent recruitment is more of an art than a science.

While there are challenges, Facebook ads are a **quick** and relatively **cheap** way to recruit diverse respondents in many contexts. And for the most part can provide quality data, especially if you are mainly concerned with **internal validity**.



Questions?

Thanks!

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