

Tablets and Smartphones:

adopting new technologies for household surveys in Kenya



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Using Paper and Pencil



- Low tech
- Low cost
- High error rate
- No 'checks'
- Delayed data review

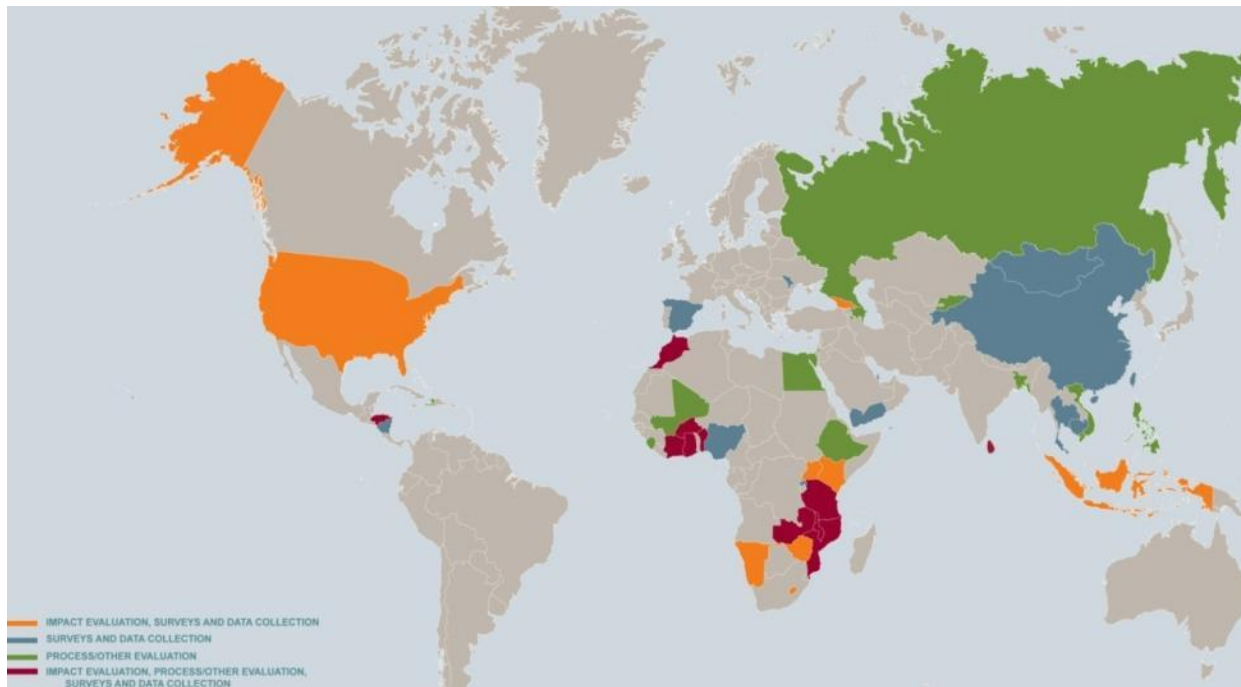
mCAPI: Revolutionizing Data Collection



- Programmed 'checks'
- Rapid data review
- Interviewer monitoring
- Easy programming
- Small size, long battery life
- Durable and secure

Using Tablets for Surveys

International Projects: Evaluations, Data Collections



- 5 countries
- 150,000+ households
- 30,000 interviews

mCAPI Pros/Cons Over PAPI

PROS	CONS
<ul style="list-style-type: none">• Much less lag between data collection and analysis• Fewer data entry errors, cleaner data• Rapid quex changes/fixes• Rapid feedback to interviewers• Cheaper (maybe)• Less dependent on subcontractors	<ul style="list-style-type: none">• No case management (yet)• Difficult to reconcile errors after the fact - no paper trail• Higher risk of stolen data and harm to enumerators• Difficult for supervisors to review enumerators' work• Changes in work processes/training• Format limitations (tables, text)

- Pros outweigh cons for some, but not all projects
- When choosing mCAPI, **does device affect data quality?**

Assessing data quality by mobile device*

- World Bank's Kenya State of the Cities Survey
 - mCAPI survey in 15 cities using 7-inch Android tablets
 - Listed 194,000 households and administered 14,600 thirty-minute surveys (July 2012-March 2013)
- Selected two interviewers to administer 200 interviews using smartphones instead of tablets
 - 50 interviews each in two cities (Nairobi and Thika)
- Compared quality of data collected using tablets to data collected using smartphones
 - Exact same UI on phones and tablets (designed for tablets)

Tools for measuring quality

- Interview Duration
- Item Missingness (Response data)
- Item Missingness (GPS Data)
- Valid Phone Numbers
- Other Findings

We found that our two interviewers differed greatly from one another, so we present their results separately.

- Mean interview durations:

	John (Nairobi)	John (Thika)
Phones	25.8	40.2
Tablets	37.5	31.8
Difference	NUMBERS NOT	MAKING SENSE

(Jane showed no significant results tablets vs. phones, but she showed significantly shorter durations overall)

Item Missingness (Responses)

- Average number of missing responses (DK/R):

	John	Jane
Phones	1.5	2.8
Tablets	1.4	1.7
Difference	-0.12	-1.17***

Jane performed worse on phones

Item Missingness (GPS)

- Percent of interviews with GPS coordinates:

	John	Jane
Phones	99.0	97.7
Tablets	88.4	97.7
Difference	-10.33***	0.13

Difference only in Thika; probably due to mobile network availability, GPS chip quality, software...

- Average number of valid phone numbers:

	John	Jane
Phones	0.9	0.5
Tablets	1.1	0.7
Difference	0.14**	0.18***

Phones were worse everywhere: Due to typos? Physical difficulty typing on phones? Respondent reluctance?

- Confidence and comfort in typing dependent on past experience with device and touchscreens
- Interviewers felt more likely to accidentally select options on phones
- Interviewers admitted to not scrolling completely through questions/responses on phones
- Felt more professional with tablets
- Felt safer with phones
- Tablets attracted unwanted attention

- Phones associated with more typing error
 - Long open-ended questions, long numeric strings are difficult
- Otherwise, phones and tablets affect different interviewers differently
- Some observed differences probably due to respondents' perceptions rather than hardware
- Phones probably are not worse for all surveys, but much more research is needed

- Bigger study exploring more dimensions with more interviewers, introduce randomization
- Review results by respondent characteristics, sample characteristics, other?
- Observe human-computer interaction (HCI) among different enumerators administering the same survey
- Further research questions:
 - Is there an “optimal” screen size? How is it determined – age, gender, technical capacity, prior experience?
 - What is the role of software?

Thank You!



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