What can we learn from in-app paradata on the active-passive trade-off in smart surveys?

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Smart surveys?

Smart surveys have at least one of the following smart features:

1. Device intelligence: It can use the intelligence (computing, storage) of the device
2. Internal sensors: It can employ the sensors available in the device;
3. External sensors: It can communicate with other sensor systems;
4. Public online data: It can extract publicly available online data;
5. Personal online data: It can go online and request access to existing external personal data;
6. Linkage consent: It can ask consent to link external personal data already in possession of the survey institute.

Why smart surveys?

Survey themes that satisfy one or more of following:
1. Burden: The survey topic(s) are burdensome for a respondent (time or cognitive effort);
2. Centrality: The survey topic(s) are non-central to respondents;
3. Non-survey type: The survey topic(s) do not lend themselves to a survey question-answer approach to begin with;

→ reduce drop-out, satisficing, measurement error, improve validity.

Active data collection = Respondents are involved in interpretation of the smart task, retrieving information through the smart task, judging the smart data, and/or submitting the smart data.

BUT ARE RESPONDENTS MOTIVATED, ABLE AND COMPETENT?

In-app logdata on navigation/clicking behaviour

| userName	action	objectName	time
1234567	open screen	LoginScreen	2021-09-10 13:29:25
1234567	open screen	Menu	2021-09-10 13:30:11
1234567	open screen	StartQuestionnairePage	2021-09-10 13:30:11
1234567	close screen	StartQuestionnairePage	2021-09-10 13:34:59
1234567	openTab	ReceiptListScreen	2021-09-10 13:35:50
1234567	openTab	ReceiptListScreen	2021-09-10 13:35:56
1234567	openTab	OverviewScreen	2021-09-10 13:35:58
1234567	openTab	ReceiptListScreen	2021-09-10 13:36:00
1234567	open screen	ManualEntryScreen	2021-09-10 13:36:20
1234567	open screen	SearchWidget	2021-09-10 13:36:23
1234567	close screen	SearchWidget	2021-09-10 13:36:29
1234567	open screen	DiscountDialog	2021-09-10 13:37:14
1234567	close screen	DiscountDialog	2021-09-10 13:37:22
1234567	open screen	DatePicker	2021-09-10 13:37:44
1234567	close screen	DatePicker	2021-09-10 13:38:49
1234567	open screen	ManualEntryInformationIncompleteDialog	2021-09-10 13:39:04
1234567	close screen	ManualEntryInformationIncompleteDialog	2021-09-10 13:39:11
1234567	open screen	SearchWidget	2021-09-10 13:39:19
1234567	close screen	SearchWidget	2021-09-10 13:39:23
1234567	open screen	SearchWidget	2021-09-10 13:39:41
1234567	close screen	SearchWidget	2021-09-10 13:39:45
1234567	showTutorialManualEntry	InkWell	2021-09-10 13:40:15
1234567	nextTutorialPage	InkWell	2021-09-10 13:40:33
1234567	nextTutorialPage	InkWell	2021-09-10 13:40:38
1234567	open screen	ClosingScreenWarning	2021-09-10 13:40:42

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Example analysis – Household Budget Survey

RQ: How much time do respondents spend in-app?
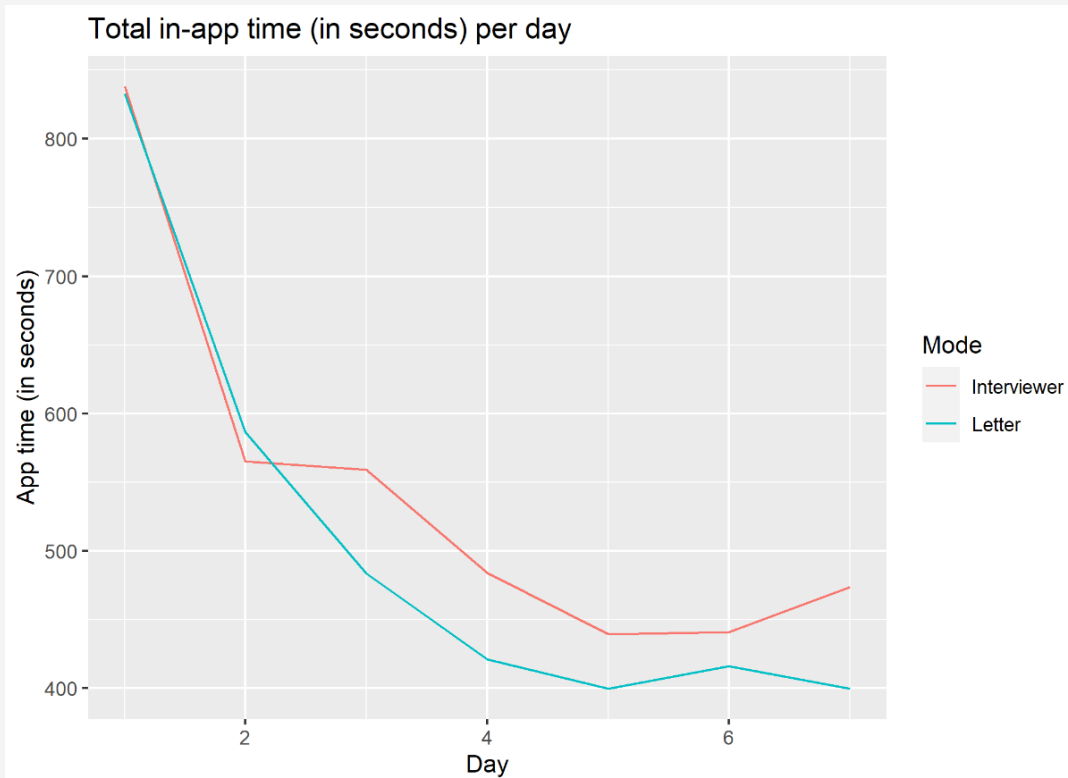
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Example analysis – Household Budget Survey

RQ: Does allowing to edit scanned (e-)tickets help?

	With editing	Without editing
Correct amount	7.8%	2.7%
Difference amount <= 1 Euro	63.9%	11.1%
Correct number of products	27.6%	16.1%
Difference number of products <=1	43.5%	45.5%
No zero amounts	38.0%	18.5%

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Example analysis – Household Budget Survey

RQ: Do respondents look at tutorials?

Average number of shown tutorial over time
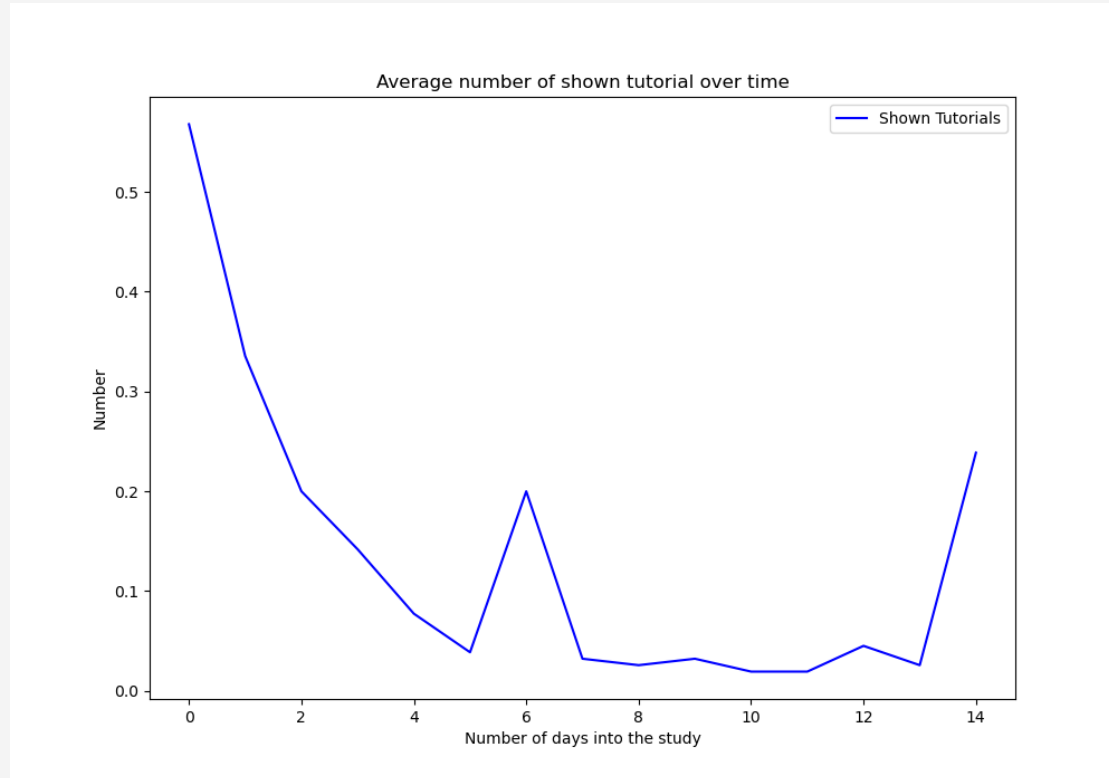
Example analysis – Mobility Survey

RQ: What edit actions on stops – tracks are done?

	One day sample		First day of seven day sample	
	All actions	Limited editing	All editing	Limited editing
Time in-app (seconds)	58	41	69	33
Nr of sessions	4.7	4.7	4.7	3.9
Nr of messages	62	44	73	36
% User-entered	6.2	NA	7.7	NA
Mean nr tracks	4	3.3	3.6	4.1
Mean nr stops	3.5	3.4	3.3	4.2
% labeled stops	81%	71%	84%	66%
% labeled tracks	76%	68%	82%	66%

Example analysis – Mobility Survey

RQ: How does battery management affect geotracking?
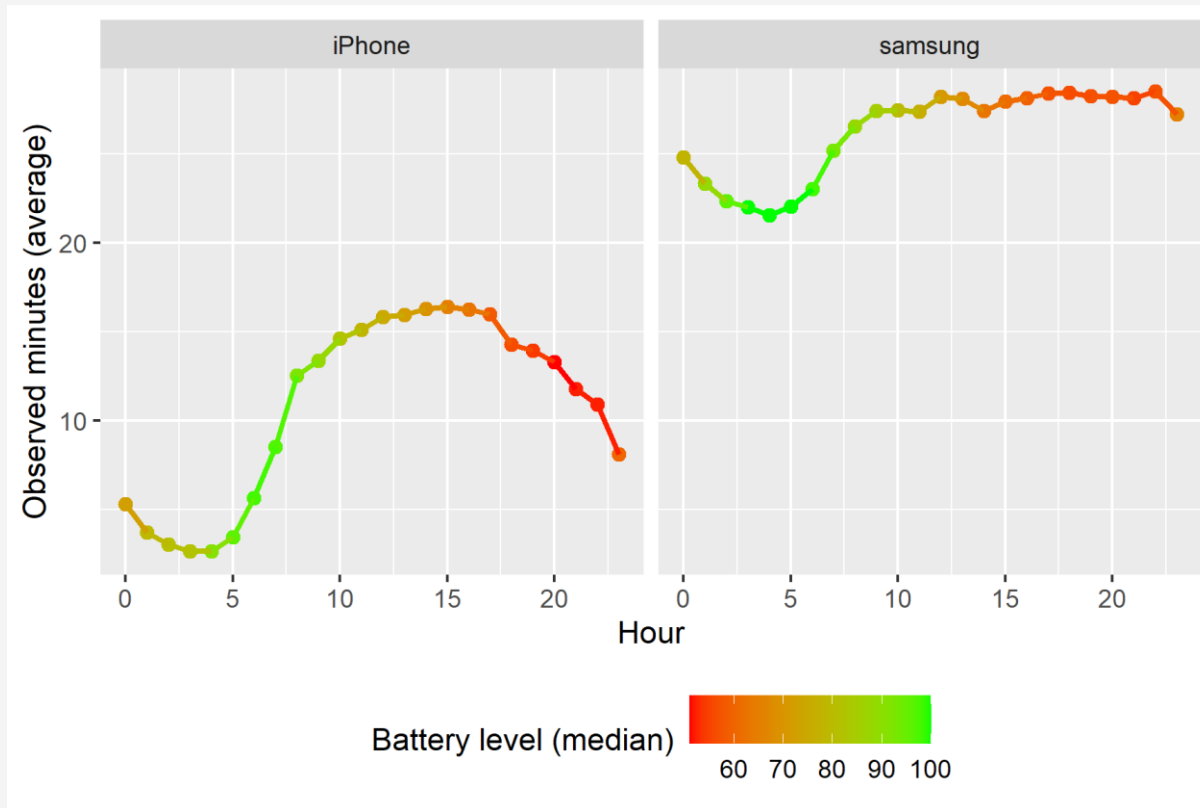
Discussion

- In-app logdata can be very useful in smart (diary) surveys to evaluate problematic (smart) tasks, BUT
  - Data generally large in size and warrants hypotheses
  - Only partially structured
  - Hard to separate inability from lack of motivation

- Research on how to structure and detect 'breaking points' in active-passive trade-offs
- Others doing similar studies?

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