Researching the moment of truth

An experiment comparing in-the-moment and conventional surveys to investigate online job applications.

ESRA 2023 Conference

CARLOS OCHOA | Research and Expertise Centre for Survey Methodology (RECSM – UPF)

Thanks to Melanie Revilla for her guidance and invaluable feedback throughout this research.

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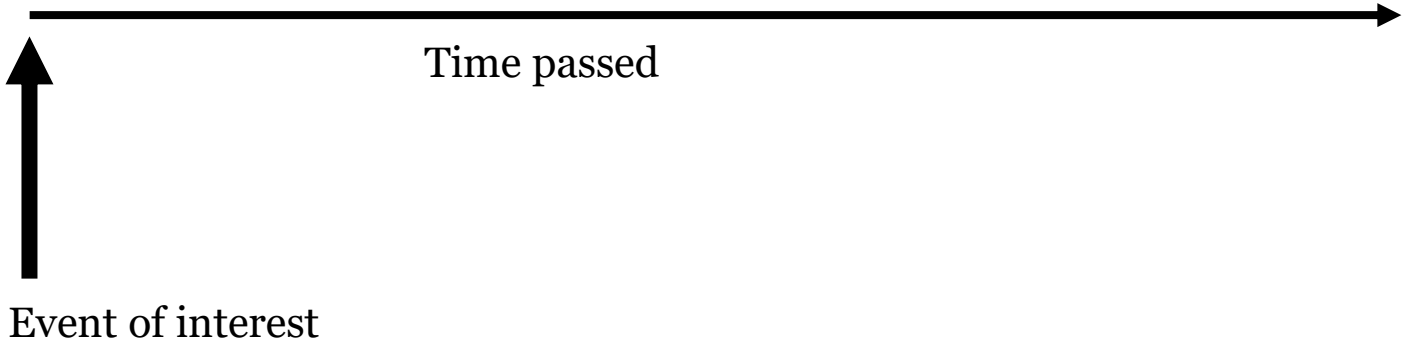

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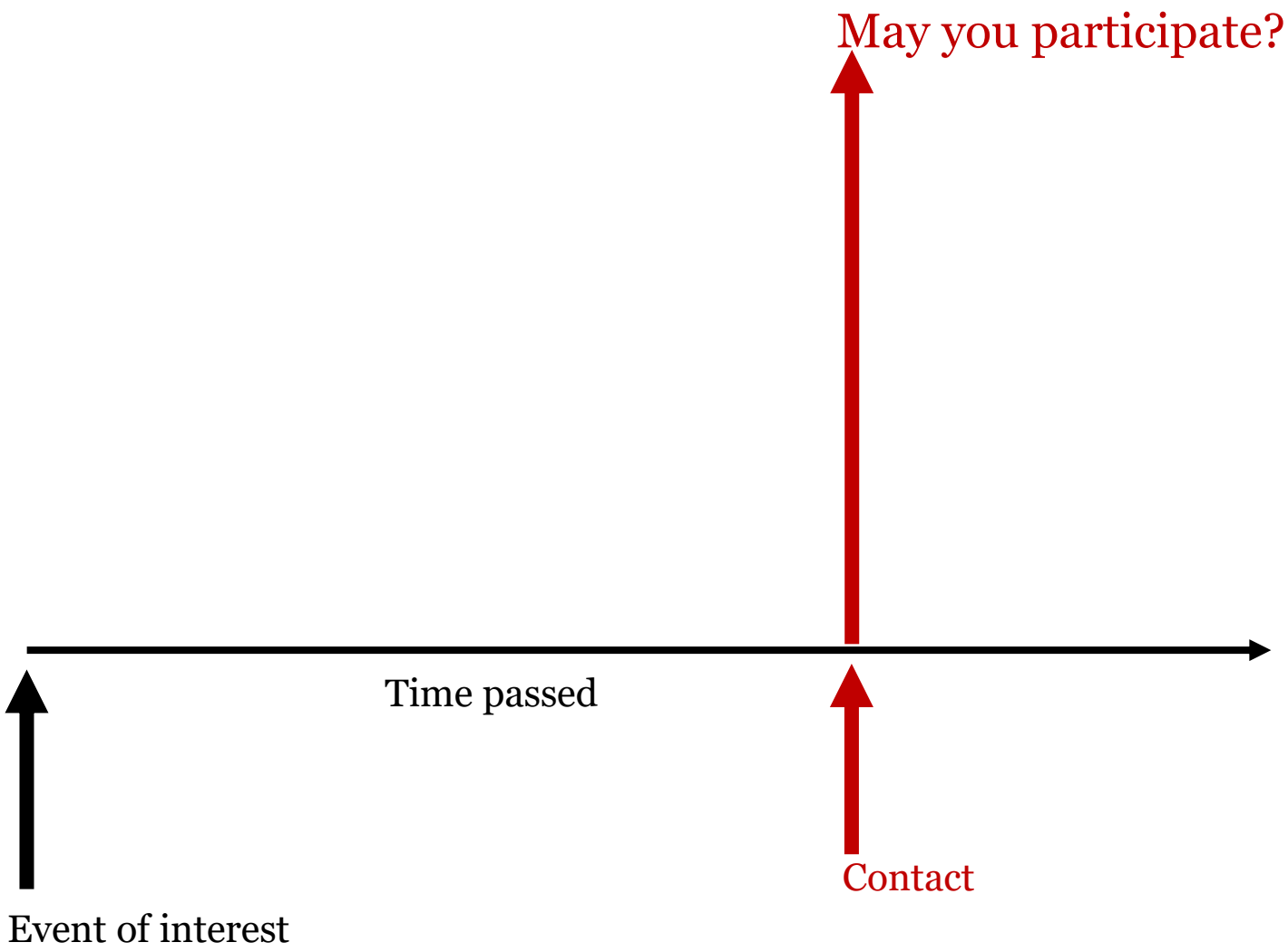

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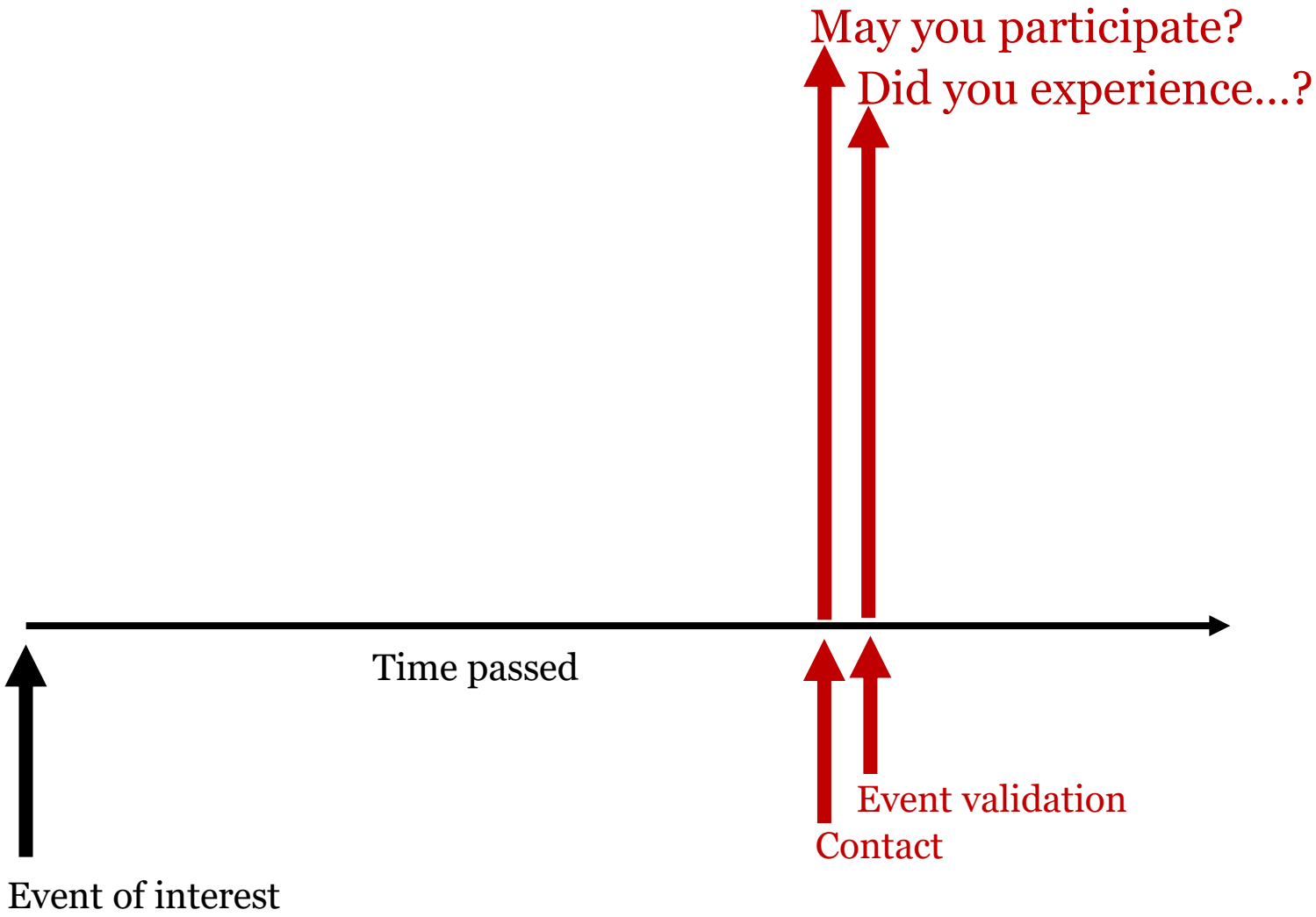

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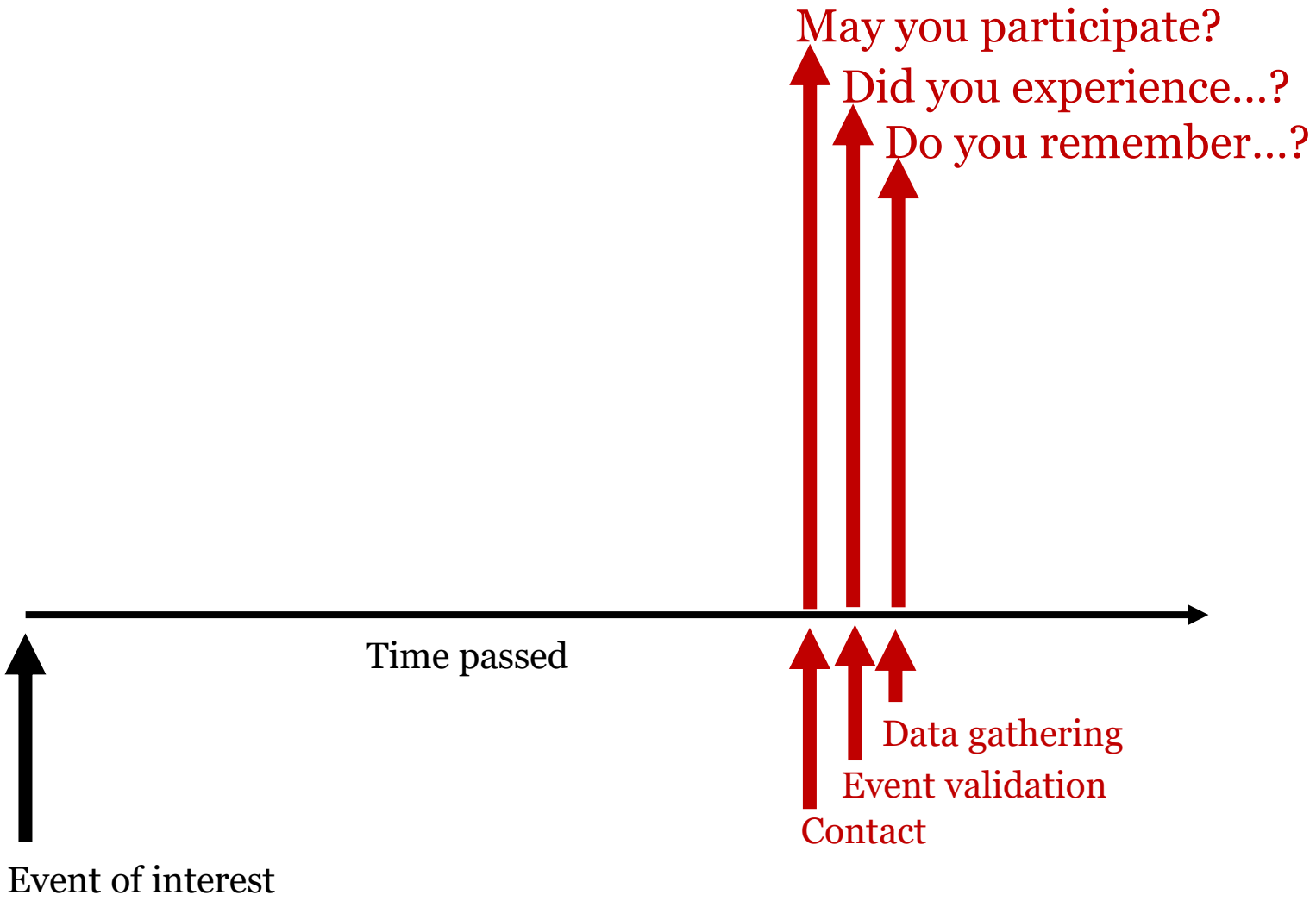

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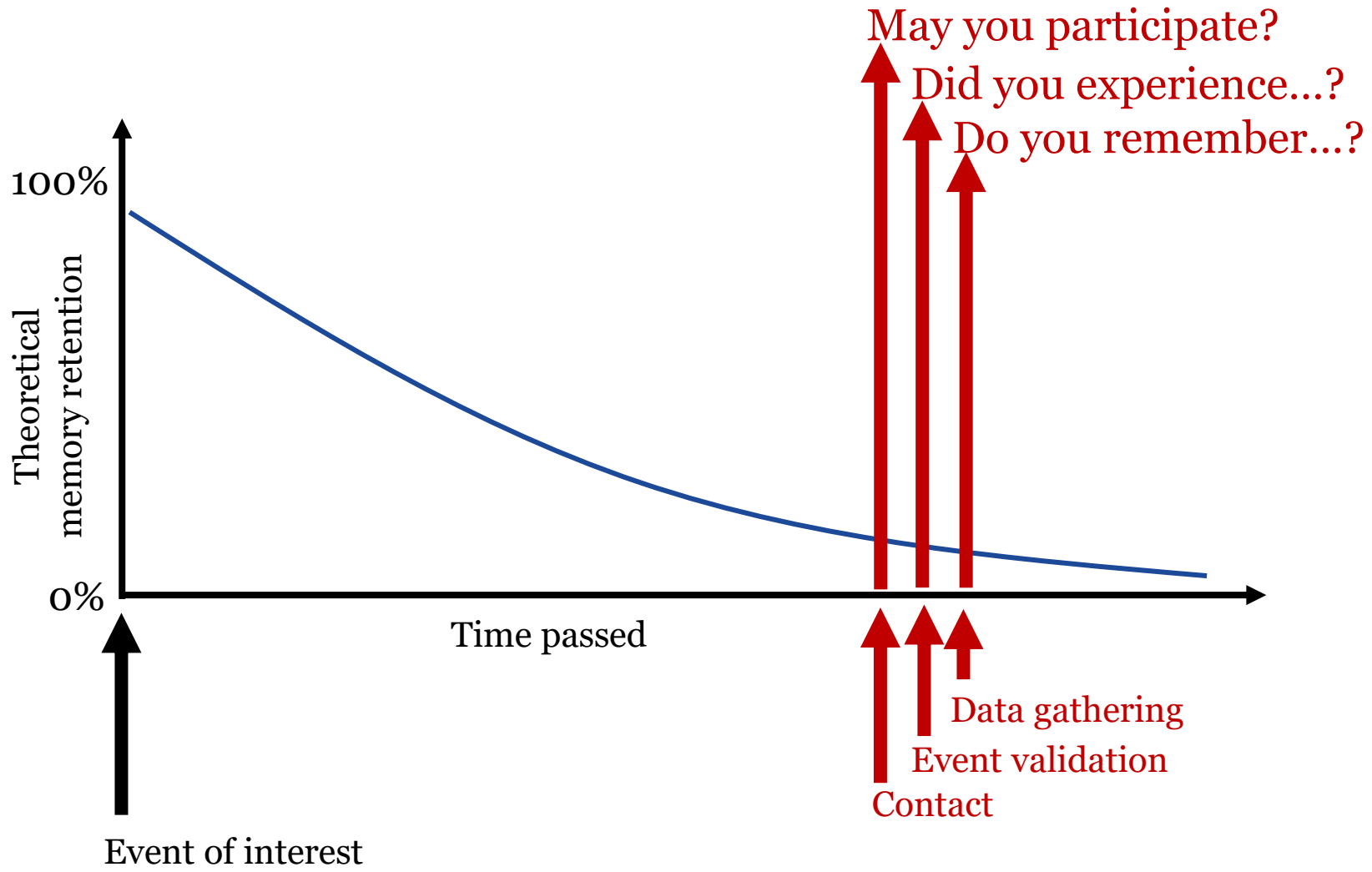

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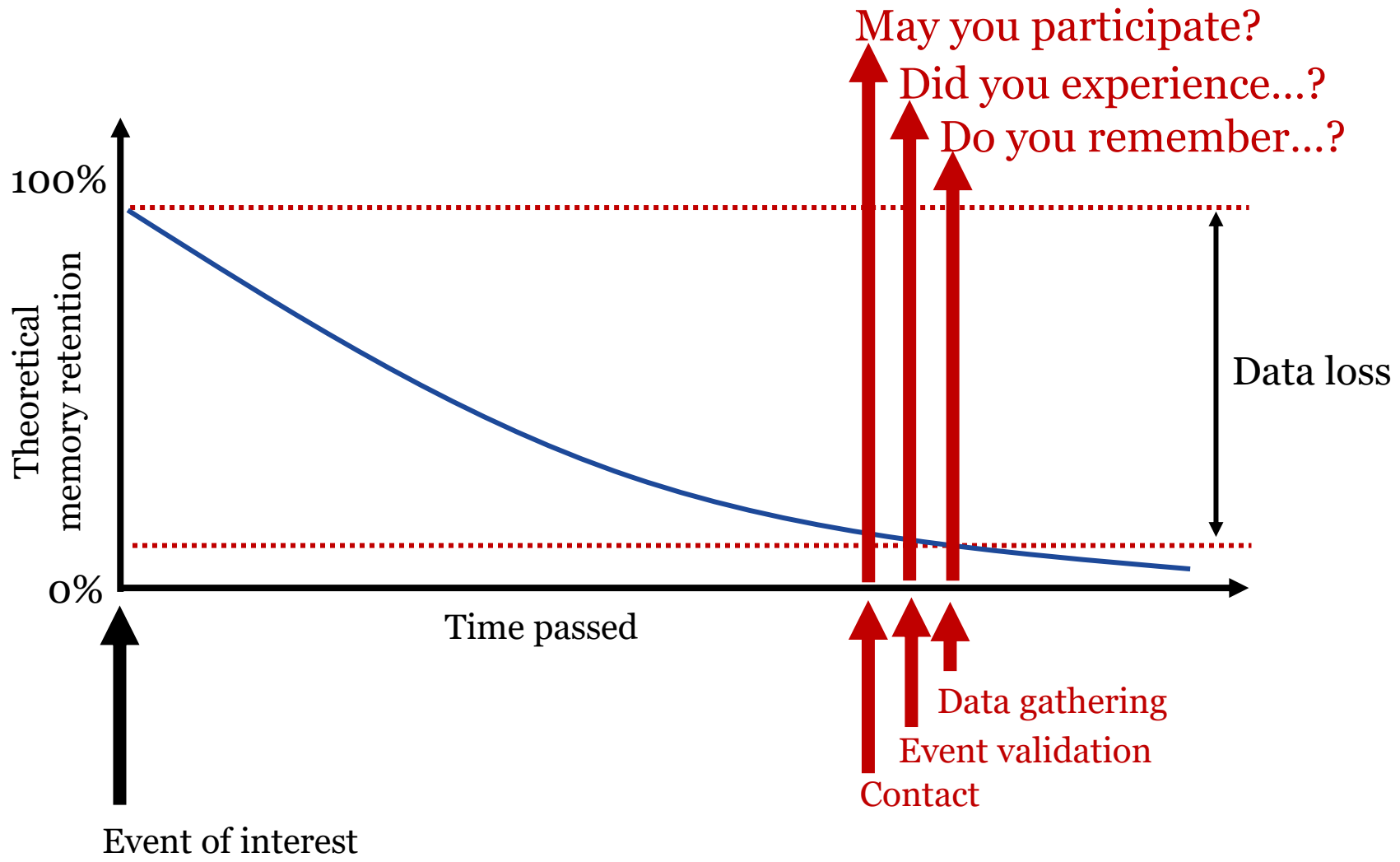

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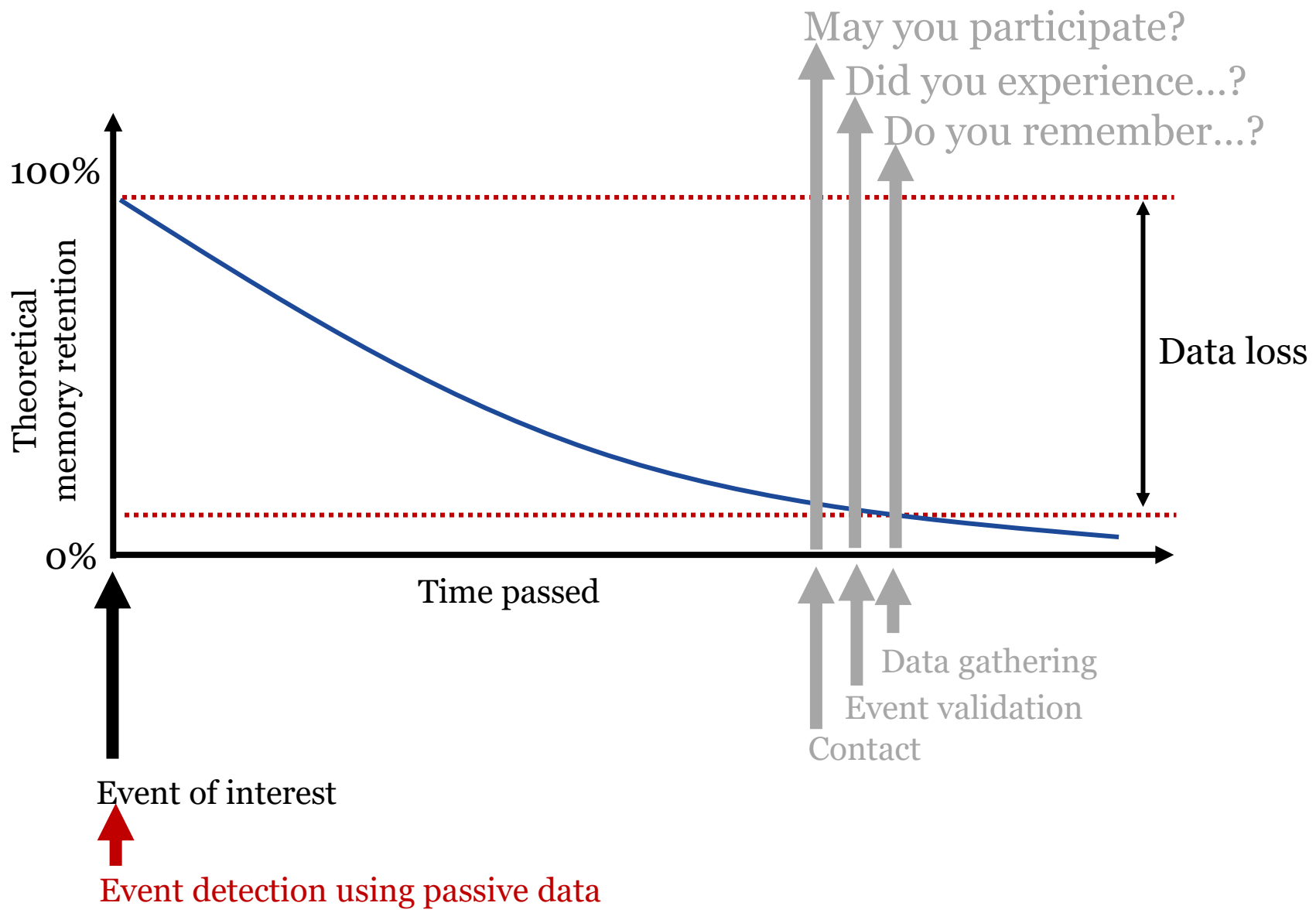

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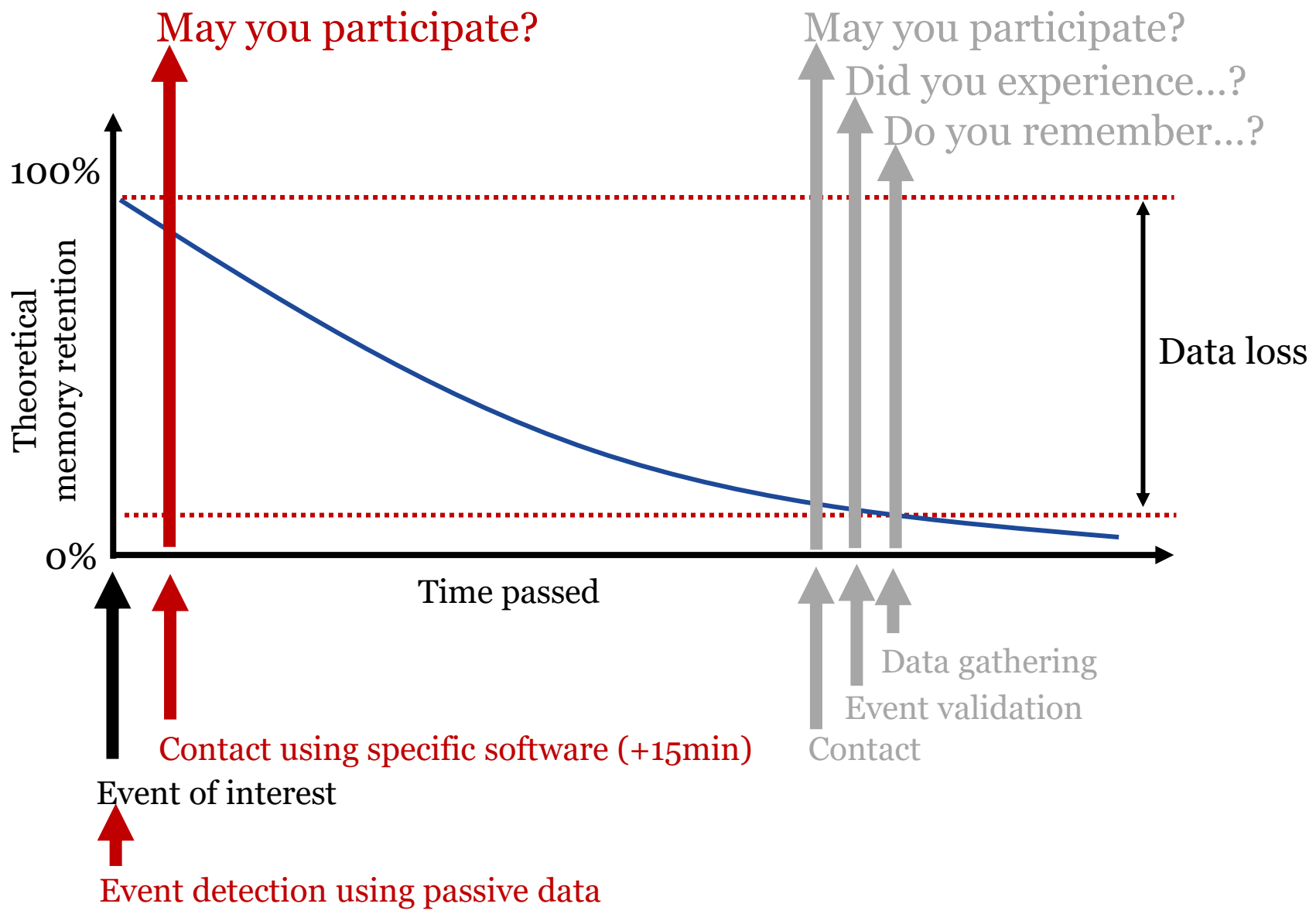

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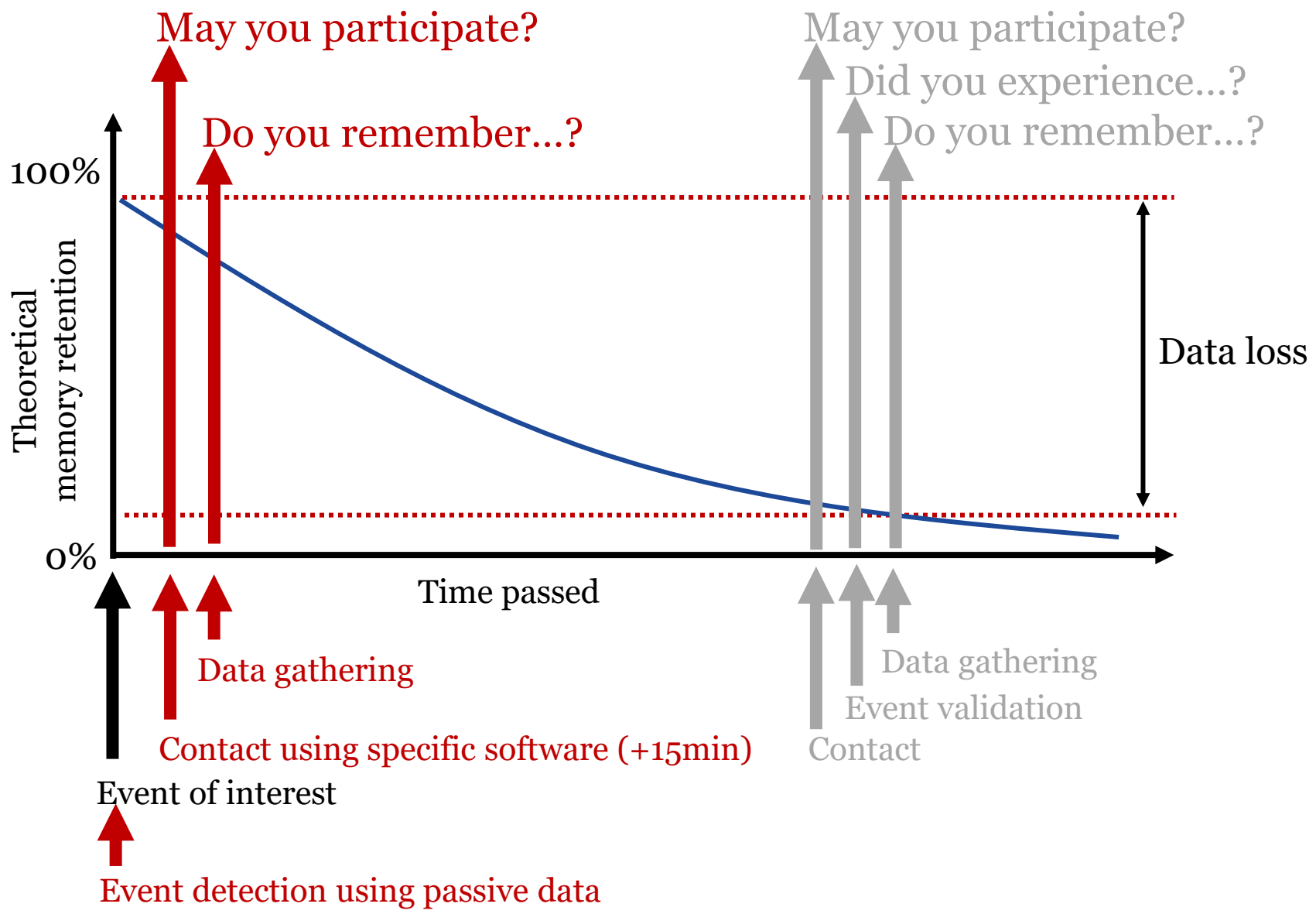

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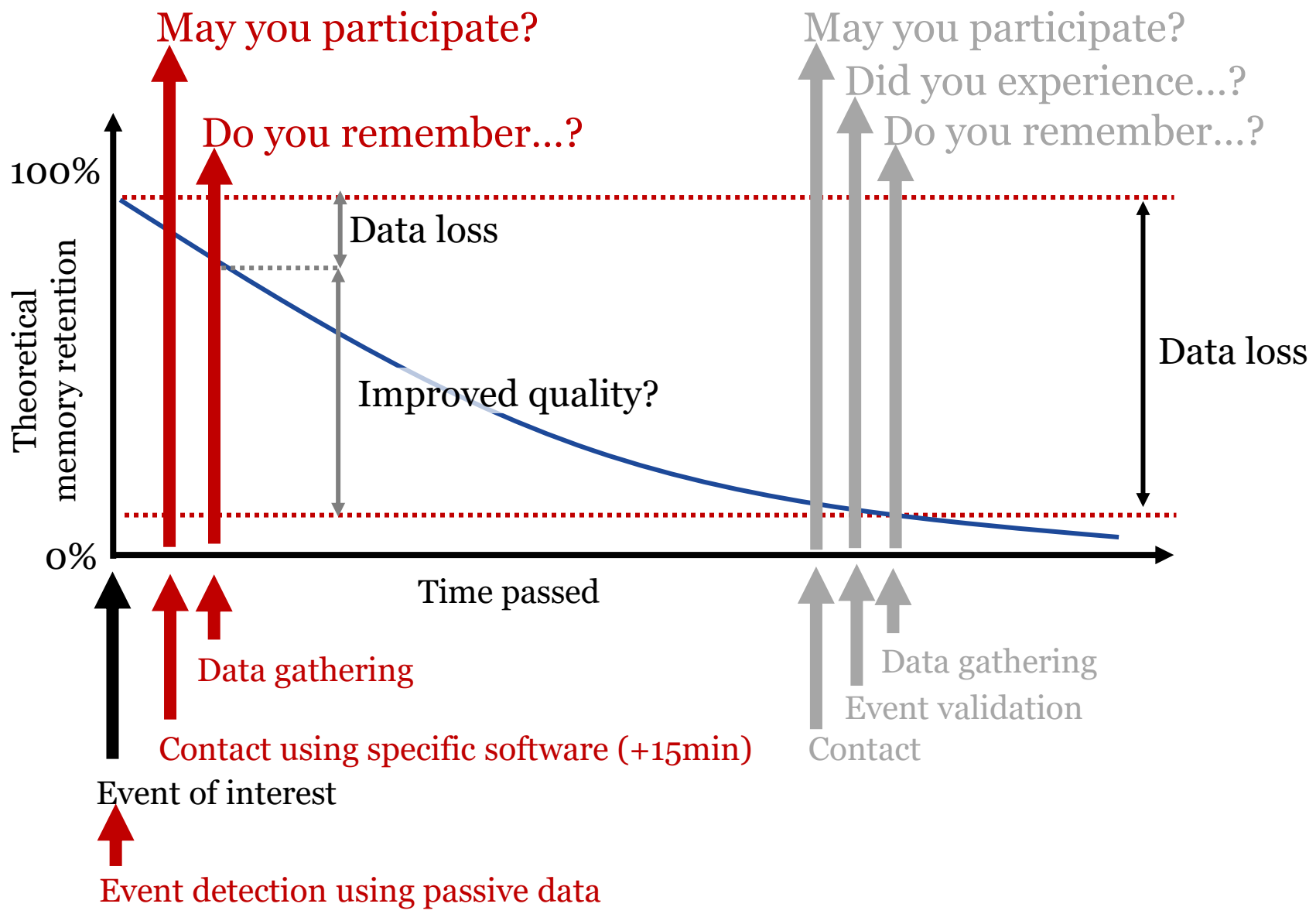

Memory errors

Major classes of memory problems (Tourangeau, 2000):

1. **Non-encoding**

   We may never form a representation of an event in our memory

2. **Post-encoding errors**

   Errors introduced after the original encoding.

3. **Retrieval failures**

   We cannot remember the information that is there.

4. **Reconstruction errors**

   We fill in missing details based on our general knowledge.

Several factors increasing the chances of suffering memory errors:

+ Many events of the same category (e.g., supermarket visits)
+ Low distinctiveness
+ Low emotional impact
+ Short duration
+ Non-rehearsal (time spent thinking or talking about the event).

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+TIME!

Background and past experiences

What we know about in-the-moment surveys triggered by metered data:

- **High theoretical willingness to participate** among metered panelists (69% to 95%) (Ochoa and Revilla, 2022).
- **But very limited experimental research:** one past study focused on flight purchasers; only 18 participants due to technological and operational issues (Revilla and Ochoa, 2018).

Other related methods:

- **Ecological Momentary Assessment (EMA)** studies people's thoughts and behavior by repeatedly collecting data close to the time they engage in those behaviors. However, in-the-moment surveys focus on detecting events through passive data.

Main goal and contribution

Assessing the feasibility and potential benefits and drawbacks of in-the-moment surveys triggered by metered data.

Contribution:

Offer guidance on the utilization of in-the-moment surveys to research substantive problems that are particularly susceptible to memory errors and **identify the primary operational and technological limitations** encountered when implementing an actual project for defining future advancements.

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RQ1. Level of participation?

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RQ3. Data Quality?

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RQ4. Different substantive results?

- *H4. Different results for questions related to the event of interest.*

The experiment

- **Topic**: how people decide to apply for a job (e.g., do males apply more than females when they do not meet the job position requirements?).
- **Methods**: in-the-moment (ITM) survey vs. conventional survey.
- **Triggering event (ITM)**: people applying for a job online.
- **Questionnaire**: same basic questionnaire (71 questions) with the required adaptations for each method.
- **Sample source**: Opt-in online panel in Spain (Netquest).
- **Sample target**: 200 job applicants x 2 groups.

Fieldwork

Conventional group

N=**200** (completed)

- 160 non-metered + 40 metered

Data collected in **5 days** between

- 30th of May 2023
- 4th of June 2023

Median questionnaire length: **8.6 min**

Median delay event-survey: **23.6 days***

** self-reported by participants*

ITM group

N=**132** (in progress)

- All of them "metered"

Data collected (so far) in **91 days** between

- 10th of March 2023
- -

Median questionnaire length: **9.5 min**

Median delay event-survey: **1.1 hours***

** measured using metered data*

Preliminary results
(incomplete fieldword)

Results (I): level of participation

	ITM		Conventional	
	n	%*	n	%*
Invited	235		2,080	
Starts	192	81.7%	1, 317	63.3%
Dropouts	1	0.5%	83	6.3%
Non-consent	3	1.6%	58	4.4%
Filtered	56	29.2%	964	73.2%
Not searching Jobs in last 48h / 6 months	*17*	*30.4%*	*791*	*82.1%*
Not confirming last search / -	*9*	*16.1%*	-	
Not applying to the detected job / any job	*30*	*53.6%*	*173*	*17.9%*
Complete	132	68.8%	201	15.3%
Survey closed	0	0%	132	6.3%

** Percentages are calculated with respect to the preceding category (indicated by the indentation)*

The **dropout rate** is significantly lower for ITM, even when controlling for having installed the meter:

- Conventional+Non-Metered: 6.8%
- Conventional+Metered: 4.5%
- ITM: 0.5%

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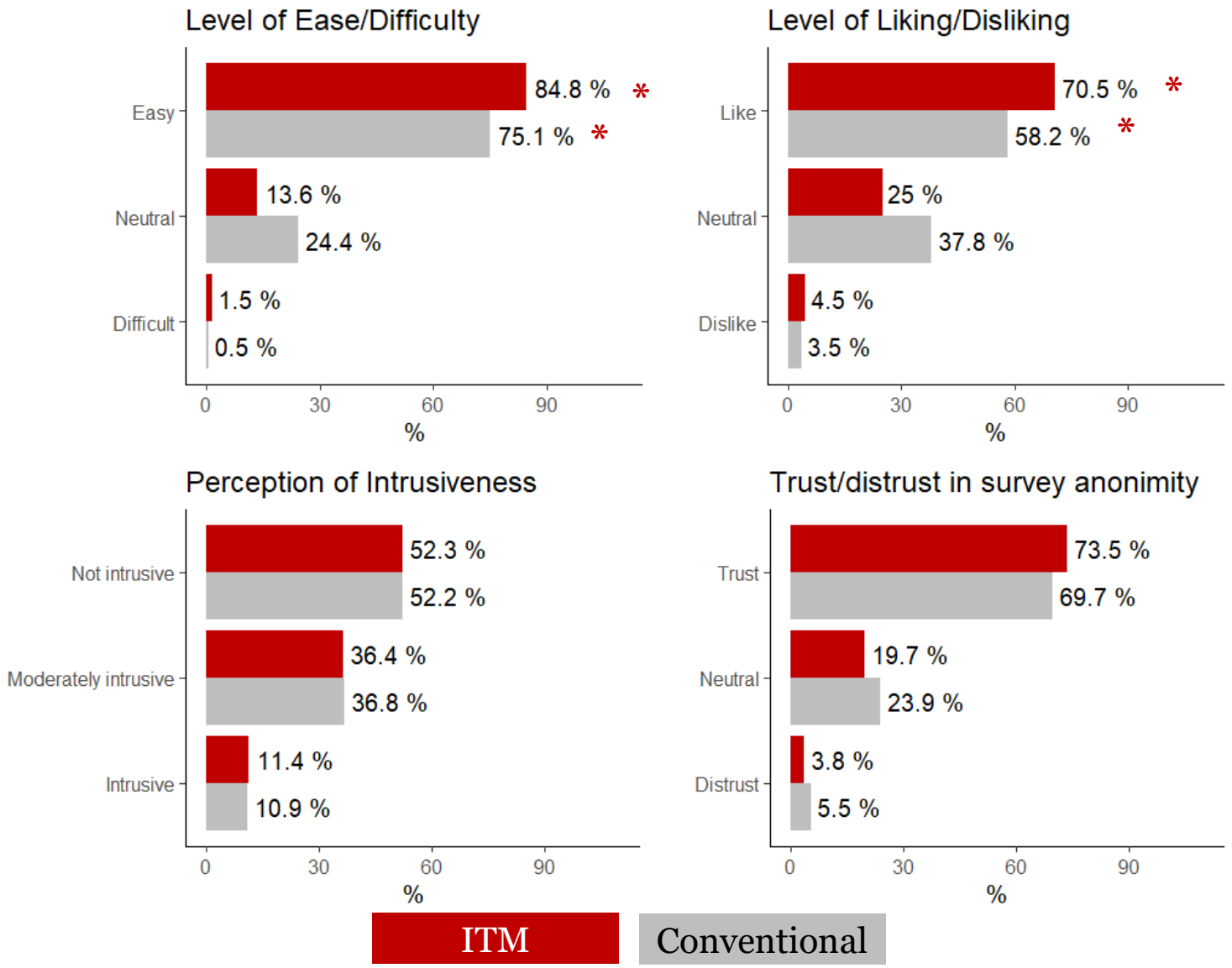

- Significant higher levels of **liking and ease** for ITM even when controlling for sociodemographics.
- When controlling for having installed the “meter”, the positive effect remains but is not significant: metered panelists are more positive towards surveys in general?
- Similar levels of perceived intrusiveness and trust in survey anonymity.

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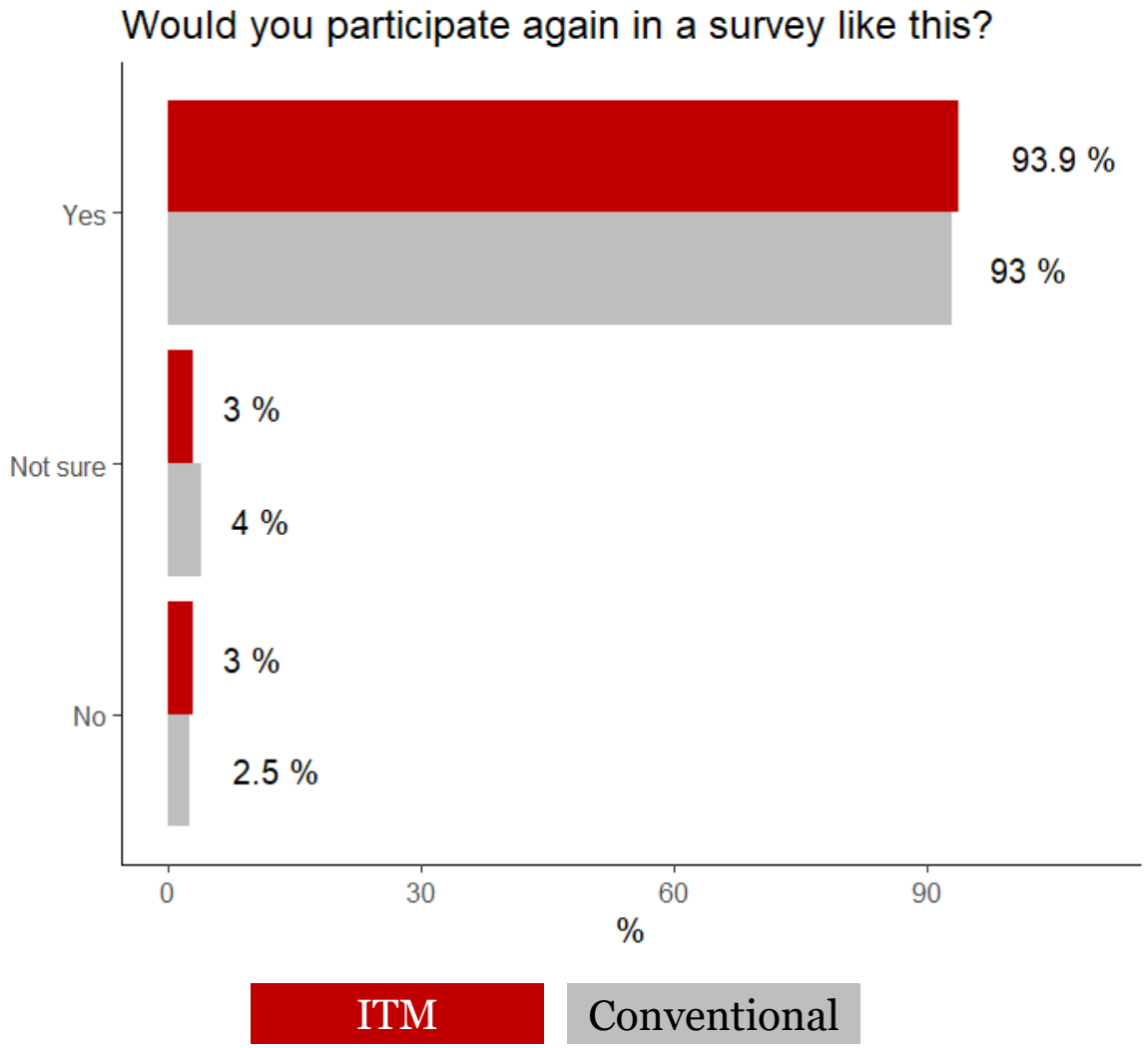

- Besides the observed differences, ITM surveys triggered by metered data does not seem to pose any challenge in terms of willingness to participate.
- Open answers to the final question do not mention any particular issue with this method, except one comment suspecting a relationship between the job search website and the online panel.

Results (III): data quality

Indicators used (num. of questions):

1. **Explicit non-recall (22)**
   - Open questions (2)
   - Explicit “Don’t know/Don’t remember” (18)
   - “Don’t know” in questions that can be answered with passive data for ITM (2)
2. **Length of answers to narrative open questions (4)**
   - Narrative open questions (4)
3. **Straight-lining (2)**
   - Batteries of questions (2)
4. **Invalid answers (not answering what was asked) (9)**
   - Open questions (9)
5. **Inconsistencies (8)**
   - Numerical answers out of bounds (4)
   - Inconsistencies across questions (e.g., more applications than offers) (3)
   - Incorrect number of selected answers in multiple choice questions (1)

Results (III): data quality

		Without controls		With controls	
Indicators	**Effect sizes of ITM**	**Beneficial effects**	**Significant effects**	**Beneficial effects**	**Significant effects**
Explicit non-recall	From -49.8pp to +5.4pp	16/22	3/22	12/22	3/22
Length of answers	From +41% to 52% longer	4/4	3/4	4/4	1/4
Straight-lining	From -1.8pp to -4.7pp	2/2	0/2	2/2	0/2
Invalid answers	From -1pp to -13pp	9/9	1/9	6/9	0/9
Inconsistencies	From +0.6pp to +6.8pp	0/8	0/8	1/8	0/8

- ITM surveys seem to have a beneficial effect on:
  - Non-recall (moderate).
  - Length of answers to narrative open questions (strong).
  - Straight-lining (moderate)
  - Invalid answers (moderate)
- Effects are partially explained by being a “metered” panelist.
- Some effects may become significant with a larger sample (end of the fieldwork?).

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Results (IV): different results

We shouldn't find differences for …
(not affected by memory effects)

- Personality traits
  - Conformity
  - Efficacy

We may find differences for …
(potentially affected by memory effects)

- % of met requirement
- % of non-compliants (apply without meeting all requirements)
- % of features that fit
- % of non-fitters (apply despite not all features fit)
- % of applications without meeting requirements in the last 6 months
- % of applications with features that did not fit in the last 6 months
- Probability of being interviewed
- Probability of being hired

Results (IV): different results

We don't expect differences ...
(not affected by memory effects)

	Conv	ITM	Diff.	p-value No control	p-value Control
Conformity	2.53	2.53	<0.01	0.99	0.38
Efficacy	3.87	3.83	-0.04	0.67	0.27

- The effect sizes for time-independent variables are almost null and non-significant.
- Variables related to the event of interest exhibit larger effects, with some cases reaching significance (not all when controlling for sociodemographics + meter).

We may find differences ...
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	Conv	ITM	Diff.	p-value No control	p-value Control
Met requirement	84.0%	76.2%	-7.78	<0.01	0.03
Non-compliants	62.3%	81.0%	+18.7	<0.01	0.02
Features that fit	76.9%	73.1%	-3.8	0.13	0.64
Non-fitters	81.6%	84.5%	+2.9	0.63	0.94
% Applications without all requirements, last 6m.	46.3%	51.7%	+5.4	0.35	0.10
% Applications without perfect fit, last 6m.	48.4%	42.0%	-6.5	0.28	0.36
Prob. of interview	55.6%	46.6%	-9.0	<0.01	0.11
Prob. of hiring	48.3%	39.8%	-8.5	<0.01	0.07

Conclusions

ITM surveys…

1. … are **well-received** by metered panelists, with high participation rates and willingness to participate again.
2. … suggest **beneficial effects** on data quality, including reduced non-recall, and longer and more meaningful answers to narrative open questions. Most of the effects are a **combination of method and selection effects**.
3. … present **significant changes in both substantive answers** (e.g., meeting requirements, probability of being hired).
4. … **continue to pose challenges;** some of them are inherent to the method (**extended fieldwork periods)**.

Limitations and further research

… of this research

- **Limited sample size** due to availability of metered panelists:
  - Lack of statistical.
  - Difficulty to disentangle selection effects (meter) from method effects.
- Data from a **single panel** (Netquest) in just **one country** (Spain).

Future developments:

- We could not measure unconscious non-recall (e.g., declared salary vs. published salary) → access **HTML content** (future research).

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… of the method

- **Complex setup** (identification of websites and specific URLs, URLs may change over time …)
- **False positives** (e.g., job applications with shared devices) and **false negatives** (e.g., job applications from non-shared devices and/or apps).

Future developments:

- Detection of "hidden" URL" and in-app events.

Thanks!

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RECSM Research and Expertise Centre for Survey Methodology

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Results: data quality

Participants in the Conventional survey were asked to what extent they were confident on truly reporting on their last job application.

- Median confidence = 99%.

But…

- 50% could not even recall the date of the application.
- Confidence does not decrease over time (against all we know about how we forget).