Of men and measures. Counting and estimation in comparative survey research.

Agata Grabowska PhD
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Surounded by numbers

We all deal with numbers in our evedyday life. Dates, hours, id numbers, frequency of events, codes and passwords…

In many comparative survey studies we ask respondents to tell us i.e

1. How many cups of coffee do you have on a regular weekday?
2. How much time do you spend watching TV every night?
3. What is your anual income?
4. How often do you buy groceries?
5. How much do you spend on gas weekly?
6. What was the amount of alimonies paid y you since Jan 1, 2008?

…and so on

(sources: questionnaires for ESS, EQLS, IPOS OMNI, SIRS)

Do we think in numbers?

Most people are bad with all kind of numerical estimates and they either over- or underestimate time, spendings or occurence of events. Moreover, there seem to be significant cultural differences?
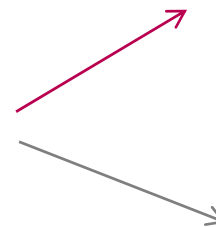
Sceptical? Try this?

- How long is one meter in Poland, Ukraine and Lithuania?
- How many cigarretes do Poles and Americans smoke?
- How far is not-so-far in Poland and Greece?

Threre is an impressive body of research on frequency of event/behavior estimation [see: Linton:1992, Wagenaar: 1986, White 1992] which proves that:

incerased frequency of event/behavior occurence

better semantic memory

decreased accuracy and ability to diffrentiate occurence

Retrieval strategies

1. Counting
2. Estimation
3. Anchoring

Choice of a particular strategy depends on a number of factors:

- frequency of events/behaviors
- time elapsed/time frame
- regularity
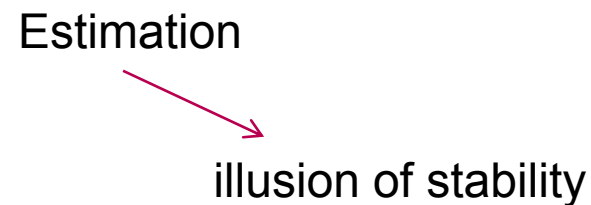- similarity
- question design (verb, syntax)
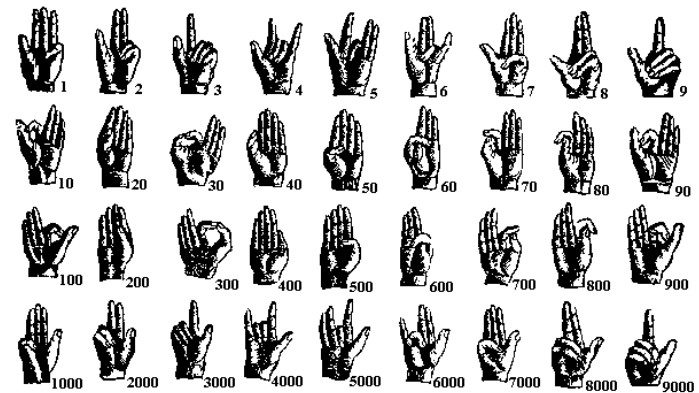
FINGER SYMBOLS
(From a manual published in 1520)

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Accuracy and errors

Errors result mostly from:

- cognitive burden
- effort input
- time perdiod
- event/behavior chcracteristics
- illusion of stability

Counting

comission   omission

Estimation

illusion of stability

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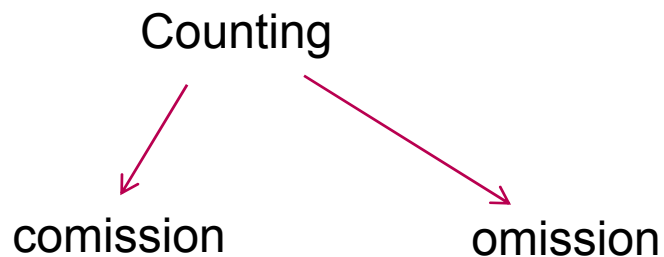
Research procedure

To see whether people do in fact make errors in estimating/counting we need to use external validation.

self generated data

observation

external data

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Experiment I

Experimental design

Goal: compare accuracy of counting vs precentage of Polish and Italian speakers estimating duration (110 subjects)

What: duration of morning rounds over one week period

Where: Milan (Ospedale di Limbiate) and Warsaw (Szpital MSWiA)

When: March 2008

Procedure: Team of 8 interviewers observation journals and the conducted cognitive interviews (supervision for Poland Agata Grabowska, for Italy – Simone Malto)

N total= 110

N(p)= 42, N(i) = 58

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Experimental design

After a week had passed half of the doctors where asked to **count** the time they spent doing morning rounds that week and half to give a **percentge** ot their time spent doing so.

We used **thinkalouds** to monitor the retrieval process.

„*So it must have been like 40 minutes at the most, because I ran form the ER at around 7.15 and did not even have time for coffee and we were done by 8 because my mother called then and I was already in my office. Yeah, roughly 40 minutes on Thursday.” (Polish repondent, male, 42)*

Additionally we asked doctors to assess how difficult the task of retrieval was:

1 very easy
2 rather easy
3 neither easy nor difficult
4 rather difficult
5 very difficult

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Results

	Polish	Italian
counting	4 h 05 min (3.1)	6 h 05 min (4.3)
percentage	7 h 45 9 min (1.7)	8 h 45 min (1.6)
real time	**3 h 45 min**	**4 h 25 min**

	Polish	Italian
error (c)	20 min	1 h 40 minutes
errror (p)	3 h	4 h 25 min

Verbs used: active voice 1 person singular (*dedicare tiempo a* and *poświęcać czas na*)

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Experiment II

Experimental design

Goal: compare accuracy of duration estimation of Polish and British Tesco shoppers (400 subjects)

What: waiting in line to the checkout

Where: Tesco supermarkets in Warsaw and Glasgow

When: June 12th, 2008

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Experimental design

Procedure: Team of interviewers observed Tesco shoppers waiting in line and measured the exact time passed. Then they conducted a 3 minute exit interview with these shoppers. Supervision for Poland Agata Grabowska, for the UK – Christian Cork.

Sample : quota sample of 200 male and female adult Tesco shoppers (we controlled age, family status and # items bought).

Addtionally we had shoppers asess their shopping experience and the waiting time. For waiting we used a 4 point scale:

1 it was fine
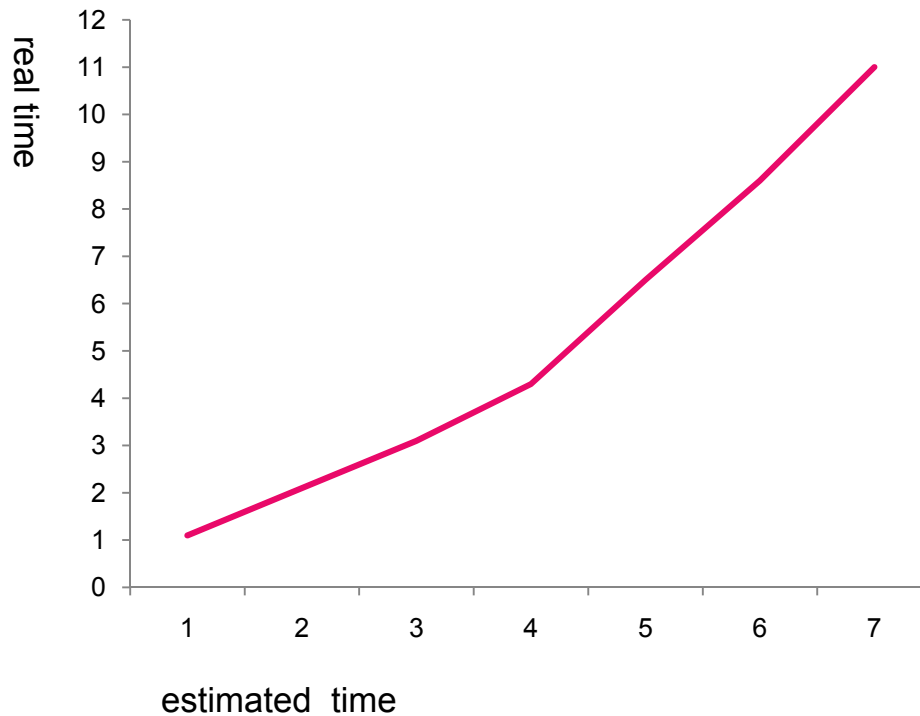2 not a big deal
2 rather irritating
3 very irritiating

Results

	Polish (N= 199)	**British** (N= 200)
estimation	8 min 45	5 min 15 sec
real time	**5 min 10sec**	**4 min 25 sec**
error	3 min 35 sec	50 sec
irritation	4.2	2.8

- older shoppers were less irritated and accurate
- individual shoppers were more accurate than family shoppers
- shoppers buying less items were less accurate (Poland)
- frequent Tesco shoppers were more accurate
- women were less irritated (2.9 vs 4.1) more accurate than men

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Results

The longer people waited the less accurate they were.

N= 199 (Poland)

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Conclusion

I

People generally tend to give inaccurate estimations of duration and these are heavily influenced by retrieval strategy, task difficulty, nature of event and emotions associated with it.

Errors of over- and under estimation are put into national database

II

These errors may be addtionally increased by cultural factors, which do not rarely control.

We wok on international data
and publish comparative reports. .

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Thank you

Agata Grabowsk, PhD
agata.grabowska@4prm.com

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