

Read It From My Fingertips – Can Typing Behaviour Help Us to Predict Motivation and Answer Quality in Online Surveys?

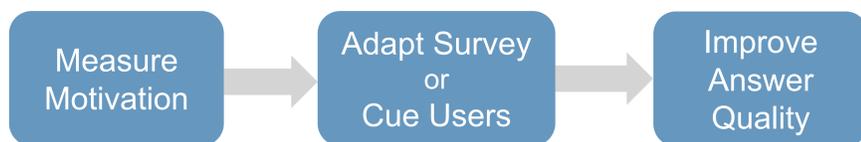
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Theoretical Background & Relevance



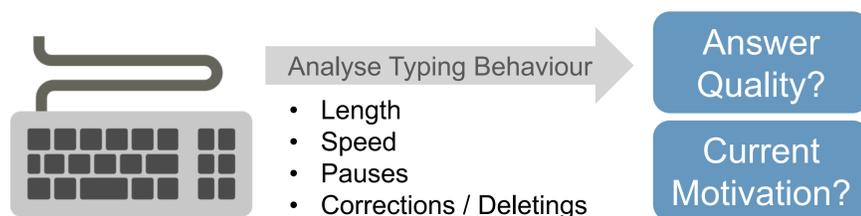
- Current motivation is an important predictor for the answer quality of online surveys (e.g. Harper, Raban, Rafaeli & Konstan, 2008)



- Measuring the motivation while subjects work on a survey could allow improvements of answer quality by adapting the survey or presenting motivational cues
- Automated labelling of answers with motivation measures could help analysing data

! Existing methods of measuring motivation rely on self-reports or indirect measures. Those are obtrusive & time-consuming.

Research Question

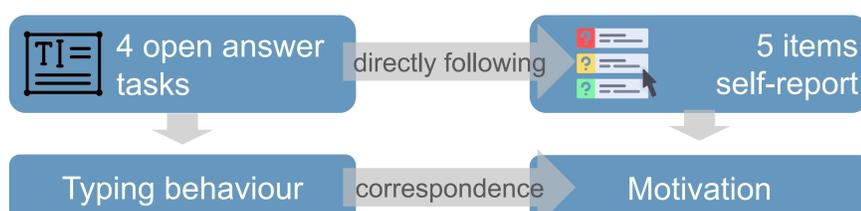


- As surveys often contain open text answers, this study investigates typing behaviour and asks:

? Does typing behaviour correspond with answer quality and current motivation?

Methodology

- Sample: $N=61$ students, age $M = 24.26$, $SD = 3.45$
- Cover Story: Evaluation of a learning environment
- Typing baseline assessments
- Answer quality* operationalised as number of propositions and uncommonness of ideas, *Motivation* as self-reports.



Recorded with ScreenAlytics (Hörmann, M. & Bannert, M., 2016)

Results

Pearsons' <i>r</i> (one-tailed)	Current Motivation	Answer quality	
		Number of ideas	Variability
Text length	.429**	.900**	.743**
Keystrokes / sec.	-.165 ($p = .13$)	.030 ($p = .42$)	.063 ($p = .33$)
# of Deletings	.318**	.583**	.413**
# of Corrections	.465*	.613**	.405*
# of Pauses (>2SD)	.364**	.553**	.542**
Time on task	.509**	.720**	.539**
Time on page	.395**	.653**	.545**

- Different parameters of typing behaviour corresponds both with current motivation and answer quality

Discussion

- Operationalization of *answer quality* could bias the correspondence with *text length*
- Multi-collinearity of the parameters limits the findings
- We need to distinguish between real-time/online data and offline data
 - i.e. *text-length* is available after the task, corrections or pauses are available during the task)

Practitioners' notes

- Typing behaviour relates to motivation and answer quality
- Observing the typing process can give us important insights in how participants work on surveys
- Use **time on task** instead of *time on page*
- Baselines* are necessary to get valid information
- Text length* is a good and easy to use predictor for answer quality and motivation

Future research

- How can *typing parameters* be used to create adaptive prompts (e.g. present a cue when answers are too short or no corrections detected)
- What is the impact of adaptive prompts?

References

- Harper, F. M., Raban, D., Rafaeli, S. & Konstan, J. A. (2008). Predictors of Answer Quality in Online Q&A Sites. *SIG CHI*, 865–874.
- Hörmann, M. & Bannert, M. (2016) *ScreenAlytics – a software framework for recording web processes*. TUM School of Education, Technical University of Munich.

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