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.

Results

<table>
<thead>
<tr>
<th>Pearson's r (one-tailed)</th>
<th>Current Motivation</th>
<th>Answer quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text length</td>
<td>.429**</td>
<td>.900**</td>
</tr>
<tr>
<td>Keystrokes / sec.</td>
<td>-.165 (p = .13)</td>
<td>.030 (p = .42)</td>
</tr>
<tr>
<td># of Deletings</td>
<td>.318**</td>
<td>.583**</td>
</tr>
<tr>
<td># of Corrections</td>
<td>.465**</td>
<td>.613**</td>
</tr>
<tr>
<td># of Pauses (&gt;2SD)</td>
<td>.364**</td>
<td>.553**</td>
</tr>
<tr>
<td>Time on task</td>
<td>.509**</td>
<td>.720**</td>
</tr>
<tr>
<td>Time on page</td>
<td>.395**</td>
<td>.653**</td>
</tr>
</tbody>
</table>

- 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


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