# Discussion

## Discussion of experimental replication and possible improvements

The point of the LDA-classifier is ultimately to develop a better standard of evaluating mouse-tracking experiments. The tracking of the mouse cursor movement is through a reverse inference seen as an indicator of the underlying cognitive processing (Schoemann et al., 2021; Kieslich, 2018). However, research have shown that the individual features of the experimental design affects the resulting trajectories, making it quite crucial to consider, how the experiment should be conducted in relation to what is appropriate for the following analysis. The data from mouse-tracking cannot be interpreted without taken the methodological setup into account (Schoemann et al., 2019).

Using a static start, click response, relative fast cursor movement and not disabling mouse acceleration creates more straight trajectories and change of mind trajectories as compared to using a dynamic start, hover response, slow cursor movement and disabling mouse acceleration (Kieslich, 2018). The LDA-model tested in this paper was trained on trajectories of the same nature as straight and change of mind trajectories. Therefore, we chose experimental settings facilitating this type of trajectories to accommodate the model. It can be debated whether this was the right choice. If the model should be tested rigorously, perhaps the right choice would be to have the methodological setup induce trajectories of a homogenous distributed nature to see, whether the model could perform without having the data accommodated to it. This could be the focus of future research. But it should still be said, that since the model did not perform well even though the design features facilitated creation of trajectories similar to the training data, it is likely that it would perform even worse, if the features of the experimental design facilitated a homogenous distribution of trajectories.

What is the point of this section?

* Focus on the data itself and how well it represents the underlying process
* Bring up discussion about design features affecting the trajectories
  + E.g. static start, click response, fast mouse, acceleration mouse creates more change of mind and straight trajectories (bimodal distributed data), while dynamic start, hover response, slow mouse, no acceleration creates more homogenous distribution of trajectories (unimodal distributed data)
* LDA-model trained on change of decision and straight trajectories
  + Should experiments using this model induce such trajectories? Or should it not?
* Kieslich dissertation is a good source for this discussion