

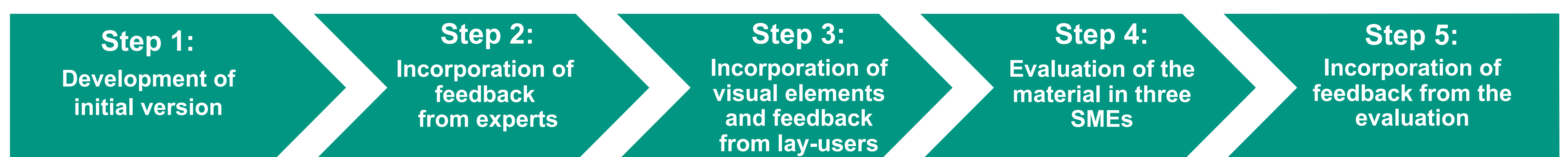
On The Systematic Development and Evaluation Of Password Security Awareness-Raising Materials*

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Problem

- Security breaches in companies can often be traced back to leaked or weak default passwords
- In particular SMEs are targeted by attacks while being most threatened by financial loss
- Prior materials demand impossible tasks of users, offer only little actionable advice, are not based on state of the art

Approach



Development of Awareness-Raising Material (Step 1, 2 & 3)

Development of initial version

- 11 attacks based on work by Bonneau et al. (2012)
- Relevant defensive technologies
- Addressing misconceptions about password security
- Emphasis on important advice identified in the literature

Feedback from experts

- Sent material to 30 experts in academia and industry
- Received feedback from 13 experts

Visual elements and feedback from lay-users

- Lab sessions with lay-users from our university
- Asked to point out unclear or unappealing aspects

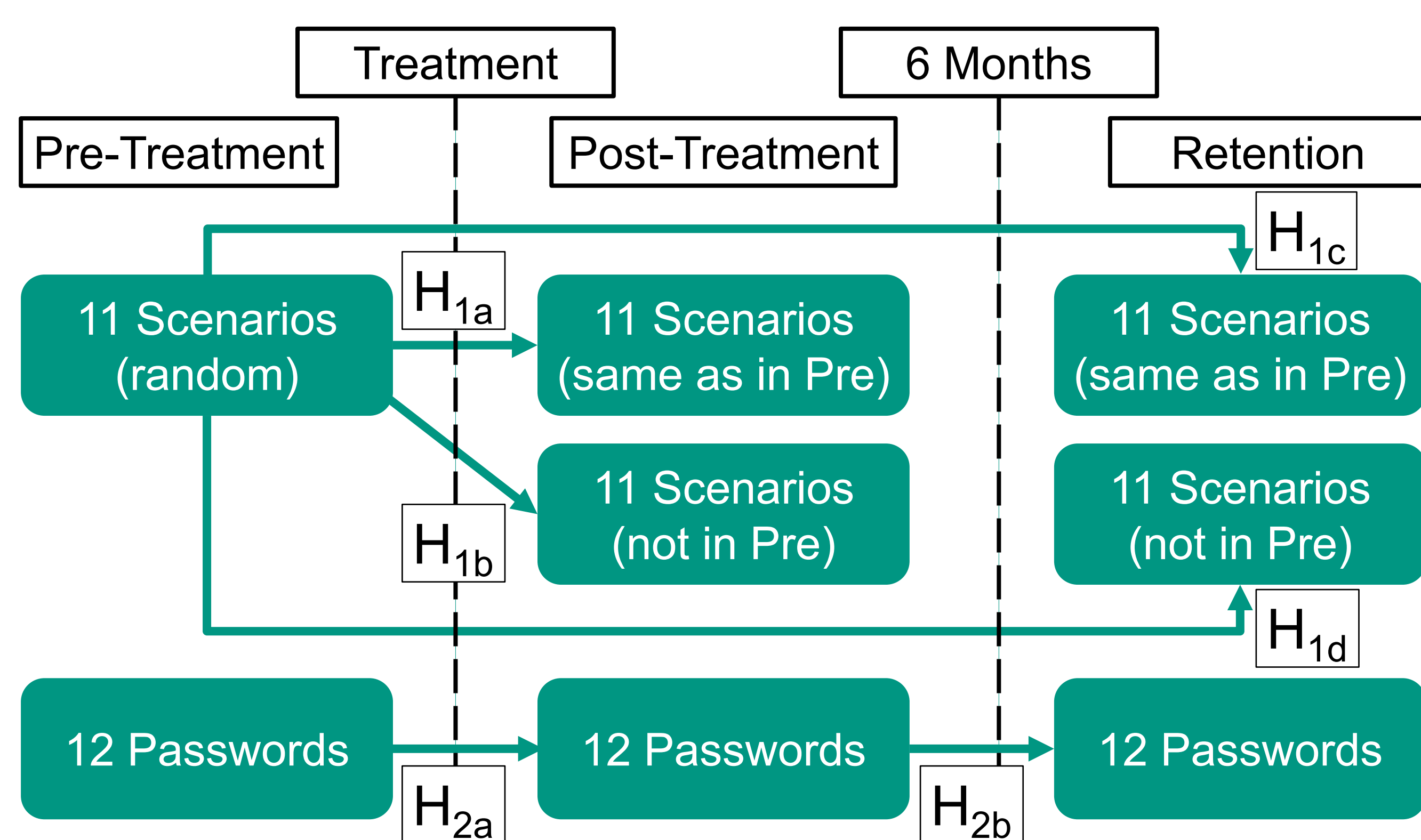
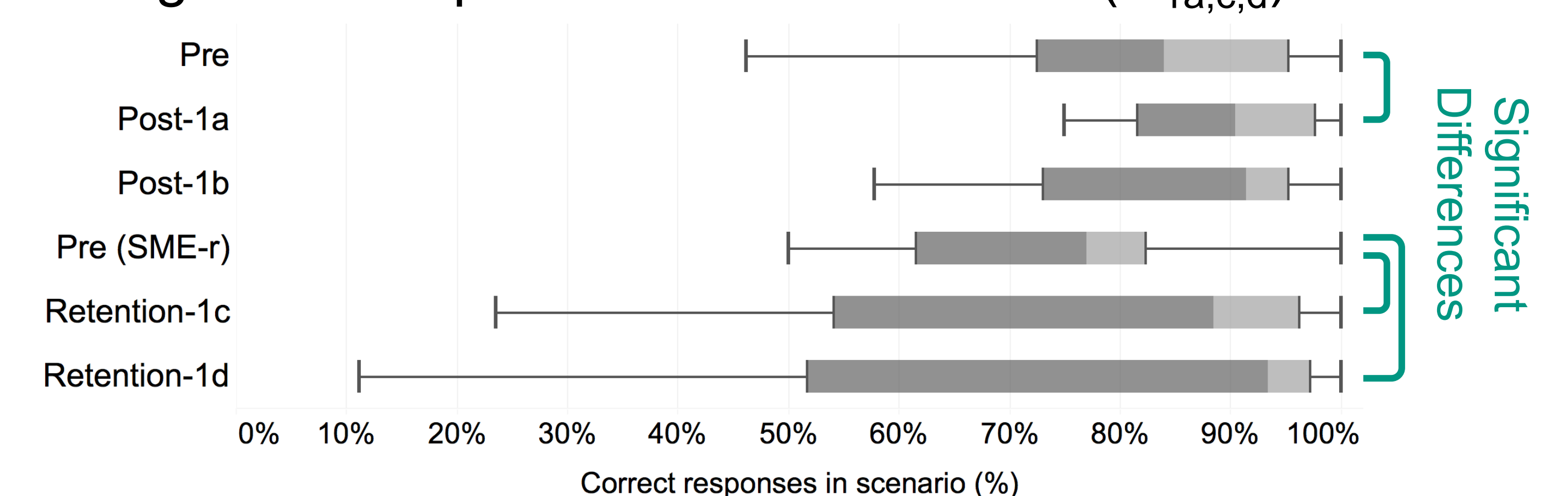
Evaluation with Lay-users and Final Refinements (Step 4 & 5)

Method

- Evaluation of the materials in three German SMEs
- 90 participants overall, 30 in each SME, selected as lay-users by contact person in company
- One SME participated in a retention after 6 months
- Tasks: Assessing behaviour in scenarios as secure or insecure and rating the security of passwords
Insecure e.g.: 1q2w3e4r\$, @Q1w2e3r4#, tIG3R
Secure e.g.: EimerKnirpsGoldSchelmerrei

Results

- Significant improvement for scenarios ($H_{1a,c,d}$)



- Discrepancy for passwords ($H_{2a/b}$)

- Overall Significant improvements for ratings
- Participants more likely to rate insecure passwords as insecure than secure passwords as secure
- Overall very positive feedback by participants
„It was very helpful. I have learned a lot!” (P7)

Refinements and Future Improvements

- Improved wording
- More concrete examples of consequences
- More information on password managers and password creation strategies

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