The Effects of Masking on Infant Visual Scanning of Talking Faces

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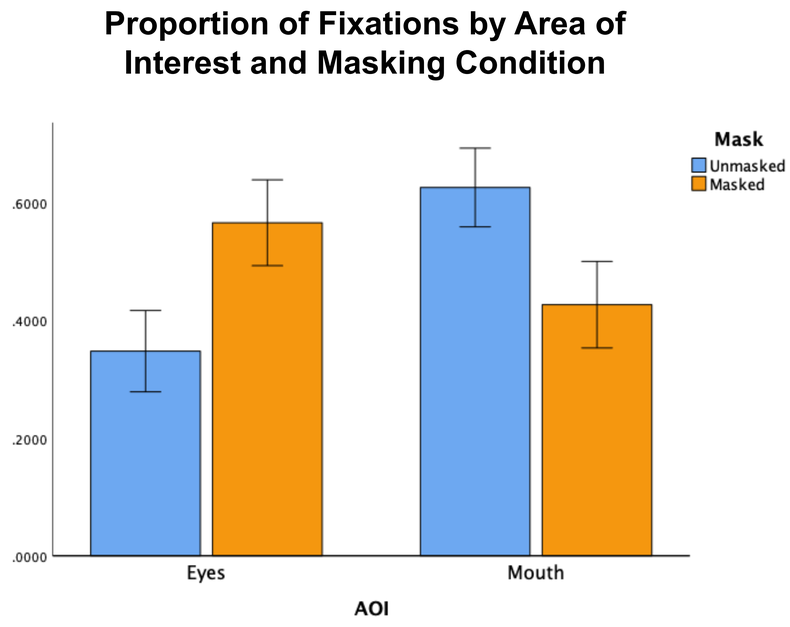
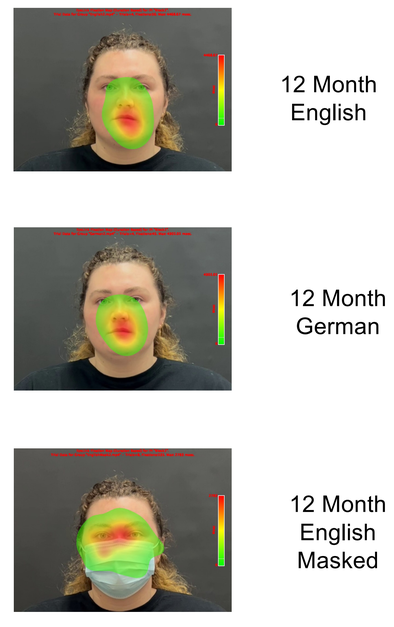
Introduction

- Faces are important for providing information to infants regarding emotions, language imitation and speech production, gaze direction and joint attention (Metzoff & Moore, 1993; Pons et al., 2019; Hecke et al., 2007).
- Previous research has shown that infants direct their attention to different areas of the face (eyes vs mouth) based on age and language (Lewkowicz & Hansen-Tift, 2012)
- Research indicates children are less accurate in determining emotions when faces are masked (Ruba & Pollak, 2020).
- The introduction of mask wearing during SARS-CoV-2 (Covid-19) creates a unique problem for infants who rely on the mouth as a source of information.
- **This study explored the distribution of infant selective attention when viewing either a masked or unmasked woman speaking in native or non-native speech.**

Results





- AOI x Mask Interaction: $F(1,14)=10.14$, $p=0.007$, $\eta_p^2 = .420$
  - Eyes Unmasked < Eyes Masked: $t(15)= -3.99$, $p=0.001$
  - Mouth Unmasked > Mouth Masked: $t(15)=2.77$, $p=0.01$

Methods

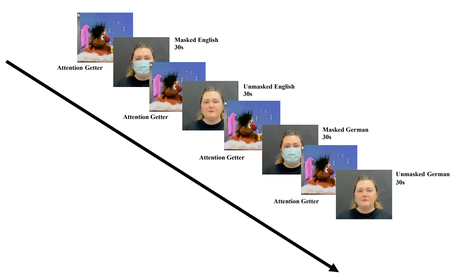
Participants
- 17 infants tested at 6 months (N=10) and 12 months (N=7)
- All monolingual English learning infants

Apparatus
- EyeLink 1000 Plus infrared eye tracker

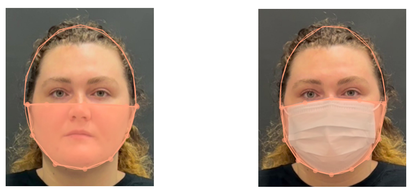
Stimuli
- 4- 30 second video clips of an actress speaking
  - English/English Masked
  - German/German Masked
- Order of presentation was counterbalanced across language and masking conditions
- All infants saw all 4 videos twice
- Attention getters were played between each video to ensure infants were centrally fixated and engaged

AOIs
- 1 interest area covered the top half (middle of bridge of nose and above) and 1 interest area covered the lower half (middle of bridge and below) of the face

Block Example



AOIs Example



Discussion

- 6- and 12-month-old infants spend proportionally more time looking at the mouth region of unmasked than masked faces regardless of language.
- The significant interaction between AOI and masking condition indicates that when the view of the mouth is occluded by a mask, 6- and 12-month-old infants shift their selective attention toward the eyes.
- Previous work showing differential scanning based on language for infants in this age range used Spanish or French as the non-native language (e.g., Lewkowicz & Hansen-Tift, 2012). German was used as the non-native language in this study and no differences in scanning were found based on language.
- The current findings are consistent with previous research showing infants look more at the mouth during infant directed speech (Roth, Clayton, & Reynolds, 2022).
- Future research is needed to examine the potential impact of the effects of masking on infant selective attention to audiovisual speech on early learning and language development.

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