

The Influence of Facial Masks on Children's Social and Emotional Development

The current COVID-19 pandemic has dramatically changed people's social lives: We increasingly communicate via video calls, keep distance when encountering each other, and in general reduce the number of people we meet in person. Additionally, the World Health Organization (WHO) recommended wearing facial masks as part of the strategy to slow down the spread of COVID-19. Not only adults but also children have to adapt to these different ways of interacting with others. In particular, children increasingly face situations in which parents, caregivers, and other people in their environment are obligated to wear facial masks. Various media reports debate the question of whether and how wearing masks impacts children's social and emotional development (see Brierley, 2020 and Jaggi, 2020 in SRF). So far, empirical evidence is insufficient to answer this question. Therefore, in this project, we investigate infants' and children's development of three important abilities, namely gaze following, joint attention, and emotion recognition, and how they are influenced by the increased time children interact with individuals wearing facial masks.

Investigating social development

Gaze following, joint attention, and emotion recognition are three early developing social abilities, which are fundamental for initiating, responding to, and maintaining social interactions. They constitute key abilities in infants' and children's social development.

Gaze following, that is, the ability to synchronize visual attention with others based on observed gaze direction (Langton et al., 2000), emerges during the second half of the first year of life (D'Entremont et al., 1997). Infants' gaze following is important for the development of their communicative competencies (i.e., following pointing gestures or keeping eye contact; Carpenter et al., 1998; Morales et al., 2005), language (Brooks & Meltzoff, 2005; Morales et al., 2000), and emotion regulation (Morales et al., 2000, 2005). Furthermore, it is important for initiating and responding to joint attention.

Joint attention is defined as the shared attentional focus of two interaction partners on a third entity, also referred to as triadic interaction (Carpenter et al., 1998). Different cues such as gazing or pointing to an object and vocalizations such as “Look!” can be used to direct someone’s attention (Carpenter et al., 1998). Joint attention enables humans to share experiences with others, coordinate thoughts and behaviors, and cooperate successfully (Siposova & Carpenter, 2019). Furthermore, it is a powerful tool for cultural learning by facilitating the acquisition of language, discourse skills, tool-use practices, and other conventional activities (Tomasello, 1999).

Children’s emotion recognition is their ability to recognize and respond to other people’s expressive emotional behavior (Caron et al., 1982). Facial emotion recognition in particular is associated with the development of children’s cognitive and linguistic development (Blair, 2002) including social skills and teacher-rated academic competence (Denham et al., 2014; Izard et al., 2001). The likelihood of showing psychopathology (Southam-Gerow & Kendall, 2002) or externalizing and internalizing problems (Trentacosta & Fine, 2010) rises with the difficulty to understand emotions shown in faces. Moreover, despite an overall improvement in facial expression recognition with age, early individual differences persist across the lifespan (Pons & Harris, 2005).

The current project

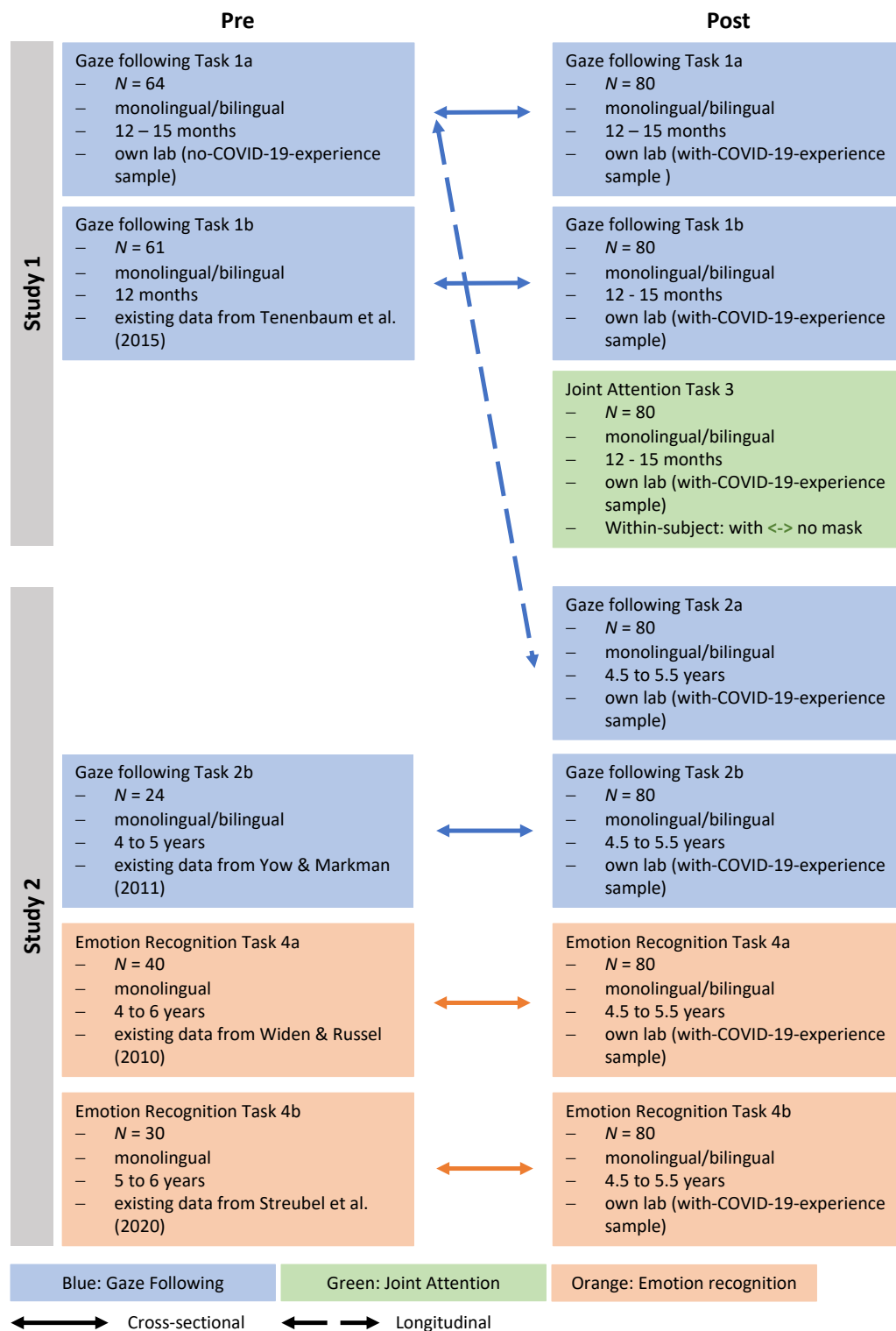
In this project, we explore the influence of seeing others wearing facial masks on infants’ and children’s social and emotional development. The guiding hypothesis is that the exposure to people wearing facial masks impacts the development of infants’ and children’s gaze following, joint attention, and emotion recognition.

We are currently running two studies in two different age groups (see Figure 1): *Study 1* compares gaze following in 12- to 15-month-olds (with-COVID-experience) with existing data of the same age group collected before the pandemic (no-COVID-experience).

Furthermore, we investigate joint attention in these infants when their caregiver does vs. does not wear a facial mask during different interactions. *Study 2* compares gaze following and emotion recognition abilities in 4- to 5-year-olds with facial mask experience (with-COVID-experience) to the same age group without facial mask experience (no-COVID-experience).

Figure 1

Overview of the Two Studies



Based on previous literature, we expect different results for the three abilities investigated. Concerning children's *gaze following*, we formulate two competing hypotheses: Either, because gaze is the only facial cue that remains accessible at all times, infants and children become more sensitive to gaze direction and will show better gaze-following competencies (similar to deaf children who rely more on the cues that are available to them; Brooks et al., 2019). Or, because the information children receive from their environment is impoverished due to the facial masks occluding parts of the faces, they might be substantially hampered in their gaze-following competencies (if one assumes that different cues are integrated into one percept; Bahrick & Lickliter, 2012).

For *joint attention*, we hypothesize that the presence of masks influences how caregivers and infants interact. Masks may make it more challenging for the infant to recognize their caregivers, read their emotions, or they might distract the infant (e.g., Déak et al., 2008; Fischer et al., 2012). Therefore, joint attention initiations and responses might differ between interactions with the caregiver wearing vs. not wearing a mask. We assume that this effect might be lower the more experience children have with people wearing facial masks (similar to the finding that children recognize partly covered faces better when they have experience with such faces; Suhrke et al., 2015).

Concerning emotion recognition, we hypothesize that children who have been exposed to people wearing facial masks will show lower emotion recognition abilities compared to children with less or without facial mask experience (since children are better in recognizing emotions when the face is fully visible; Ruba & Pollak, 2020). Additionally, this effect might depend on the specific emotion because not all facial features are weighed equally in detecting different emotions (e.g., Gagnon et al., 2014).

Because data collection is currently underway, we will present the first data at the workshop. With this project, we aim to provide an empirical basis for the question of whether

and how wearing facial masks impacts children's social and emotional development. Our results will therefore contribute to the current debate on the influence of the pandemic on the development of children and assist stakeholders (e.g., caregiving institutions) in informed decision making.

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