



Attention to Social Events, Social Competence, and Vocabulary Size at 18-Months

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BACKGROUND

Social events (e.g., audiovisual speech) provide infants with an extraordinary amount of redundant multimodal information across face, voice, and gesture. Efficient attention (e.g., flexible shifting and maintaining attention) to social information provides a foundation for typical social and language development (Bahrck & Todd, 2012). Enhanced attention to audiovisual social events (relative to nonsocial events) emerges gradually across infancy (Bahrck et al., 2016). This likely parallels the infant's increasing experience interacting with the social world and along with it, gains in social competence and language. Social competence is also related to vocabulary outcomes in 2-3-year-olds (Vaughn van Hecke et al., 2007).

We developed the Multisensory Attention Assessment Protocol (MAAP; Bahrck et al., 2018) to characterize individual differences in attention to audiovisual social events in infants and children. Prior research demonstrates that attention to social events on the MAAP is related to expressive and receptive vocabulary size in 2-5-year-olds (Bahrck et al., 2018). Here, we extend this research and assess links among all three variables, attention to social events, social competence, and vocabulary size, in younger children.

METHOD

Eighteen-month-old infants ($N=33$) participated in the MAAP. On each of 12 trials, following a 3-s dynamic central visual event, infants viewed the faces of two women speaking along with the natural soundtrack synchronized with one of them (see Figure 1). For half the trials, the central stimulus remained on throughout the lateral events (high competition) providing an additional source of distracting information and for the other half, it disappeared at the onset of the lateral events (low competition). Attention to social events was calculated as the proportion of available looking time (PALT) infants spent fixating the women's faces and reflects sustained attention to social events in the face of distracting stimulation.

Parents completed the Infant-Toddler Social Emotional Assessment (Carter & Briggs-Gowan, 2006) to assess social competence, and the MacArthur-Bates Communicative Development Inventory (Fenson et al., 2007) to assess the expressive vocabulary size.

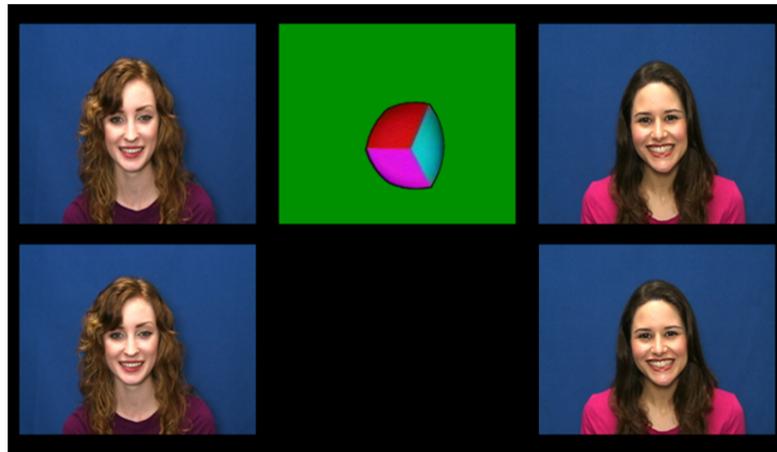


Figure 1. Still images depicting the dynamic social events on high (top) and low (bottom) competition trials shown to children in the MAAP.

RESULTS

Results indicated that social competence was correlated with both social attention ($r = .361, p = .039$) and expressive vocabulary ($r = .492, p = .004$). Social attention was not related to expressive vocabulary ($p = .48$). Given these patterns of correlations, we tested a mediation model in which social competence mediated the relation between social attention and vocabulary size (Figure 2). Results revealed that social competence significantly mediated the relationship between social attention and expressive vocabulary, $b = 93.21, 95\% \text{ CI: } 4.15\text{-}178.92$, with no significant direct effect of social attention on expressive vocabulary ($p = .73$). 75% of the total effect of social attention on expressive vocabulary was mediated by social competence.

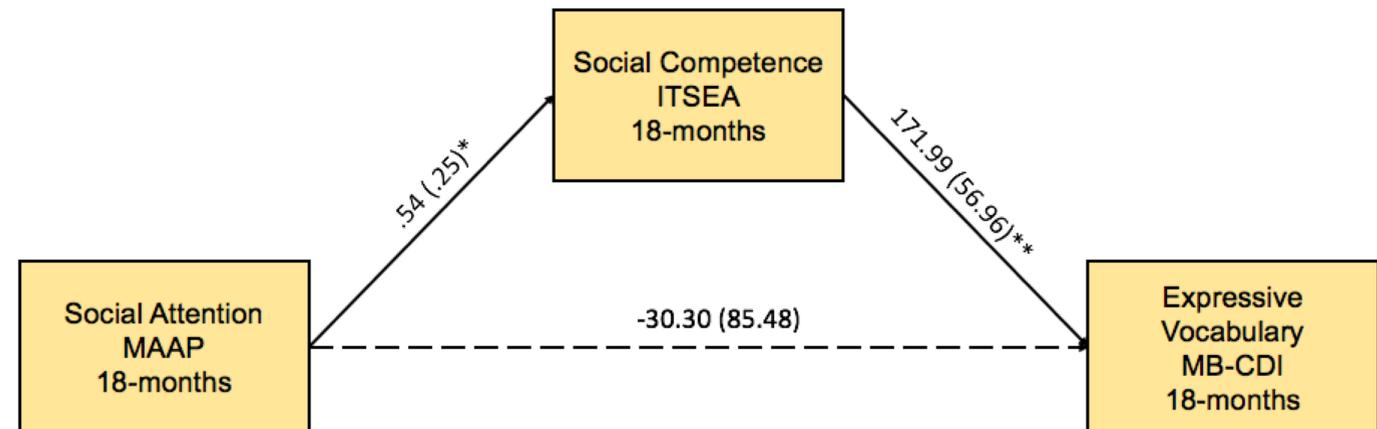


Figure 2. Unstandardized regression coefficients are presented for each path, with standard errors in parentheses. The indirect effect of social attention on vocabulary size through social competence was 75.46 (75% of the total effect). Note * $p < .05$ ** $p < .01$

CONCLUSIONS

These novel findings reveal the mediational role of social competence in the relation between attention to social events and language outcomes at 18-months. Infants who attend more to audiovisual social events in the presence of distractions show greater social competence, and, in turn, larger expressive vocabularies. Future research will examine if infant attention to social events can be trained and explore the downstream effects of this training on later social and language skills.

REFERENCES

- Bahrck, L., & Todd, J. (2012). Multisensory processing in autism spectrum disorders: intersensory processing disturbance as a basis for atypical development. In B. E. Stein (Ed.), *The new handbook of multisensory processes* (p. 657-674), Cambridge, MA: MIT Press.
- Bahrck, L. E., Todd, J. T., Castellanos, I., & Sorondo, B. M. (2016). Enhanced attention to speaking faces versus other event types emerges gradually across infancy. *Developmental Psychology, 52*(11). <https://doi.org/10.1037/dev0000157>
- Bahrck, L. E., Todd, J. T., & Soska, K. C. (2018). The Multisensory Attention Assessment Protocol (MAAP): Characterizing individual differences in multisensory attention skills in infants and children and relations with language and cognition. *Developmental Psychology, 54*, 2207-2225. <https://doi.org/http://dx.doi.org/10.1037/dev0000594>
- Carter, A. S., Briggs-Gowan, M. J., Jones, S. M., & Little, T. D. (2003). The infant-toddler social and emotional assessment (ITSEA): Factor Structure, Reliability, and Validity. *Journal of Abnormal Child Psychology, 31*, 495-514.
- Fenson, L., Marchman, V. A., Thal, D. J., Dale, P. S., Reznick, J. S., & Bates, E. (2007). *MacArthur-Bates Communicative Development Inventories: User guide and technical manual* (2nd ed.). Baltimore, MD: Brookes.
- Vaughn Van Hecke, A., Mundy, P. C., Acra, C. F., Block, J. J., Delgado, C. E. F., Parlade, M. V., . . . Pomares, Y. B. (2007). Infant joint attention, temperament, and social competence in preschool children. *Child Development, 78*, 53-69.