

Gestural Communication in Children with Autism Spectrum Disorder

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Introduction

- Autism Spectrum Disorder (ASD) is a neurodevelopmental disability with complex underpinnings and phenotypic manifestations as reflected by its diagnostic classification.¹
- In the United States, the average age at which a child is diagnosed with ASD has reduced from 4.4 years in 2006 to 2.4 years in 2015.²
- The core symptoms of ASD include a combination of social-communication impairments and restricted-repetitive behaviors.¹
- Deviancies in the development of gestural (nonverbal) communication is a primary factor involved in the diagnosis of ASD in children.¹
- Gesture production is correlated with overall language development in children.³
- Prior investigations have been limited by study-design and/or sample size. Few studies focus on the childhood population with ASD. This is vital given that neuroplasticity is at its peak during early development.⁴⁻⁵



Purpose

- The purpose of the present investigation was to:
 - 1) Develop a gesture classification system to be used with children diagnosed with ASD.
 - 2) Apply the gesture classification system to a cohort of children with ASD in order to characterize gestural communication.

Methods

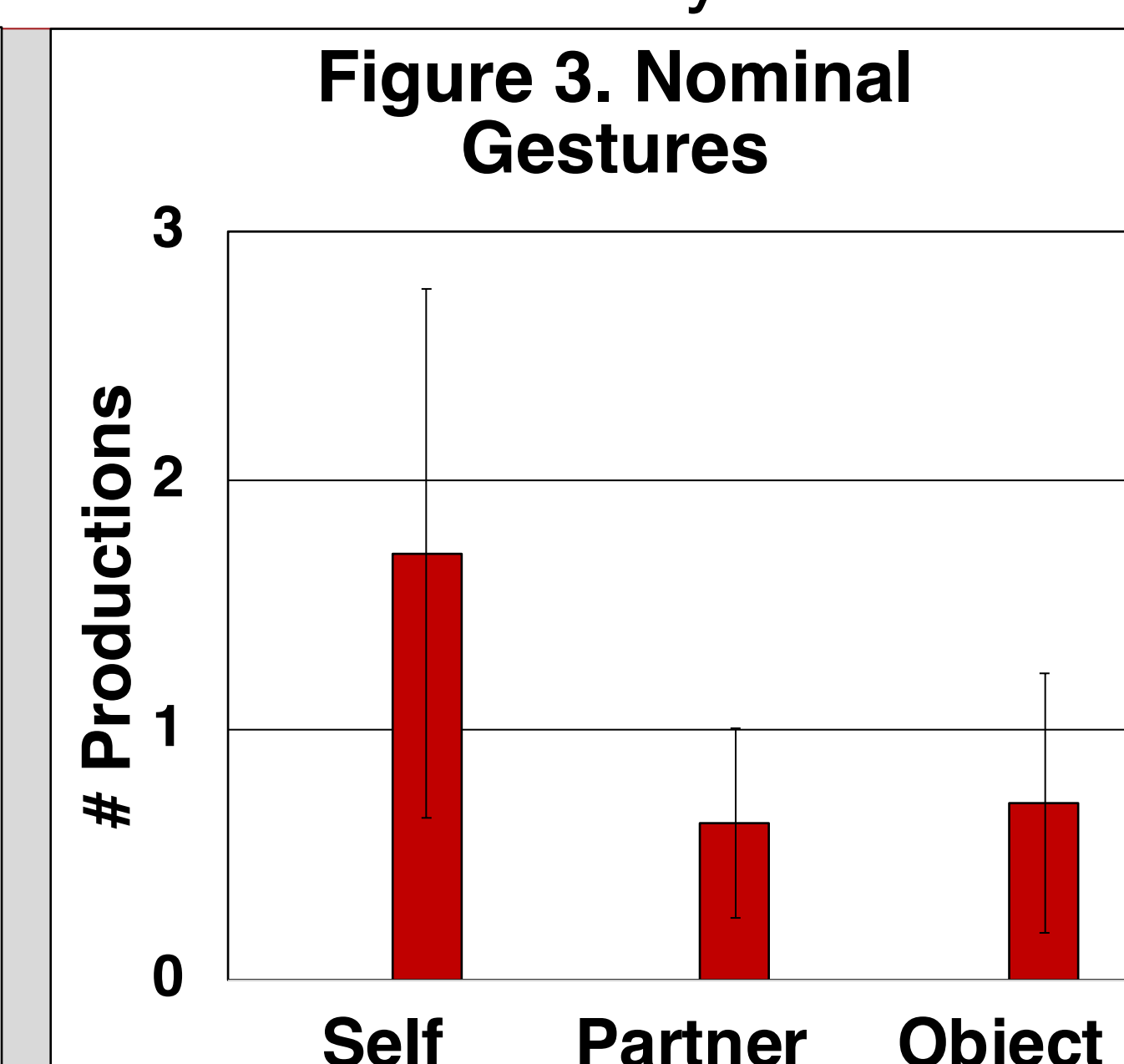
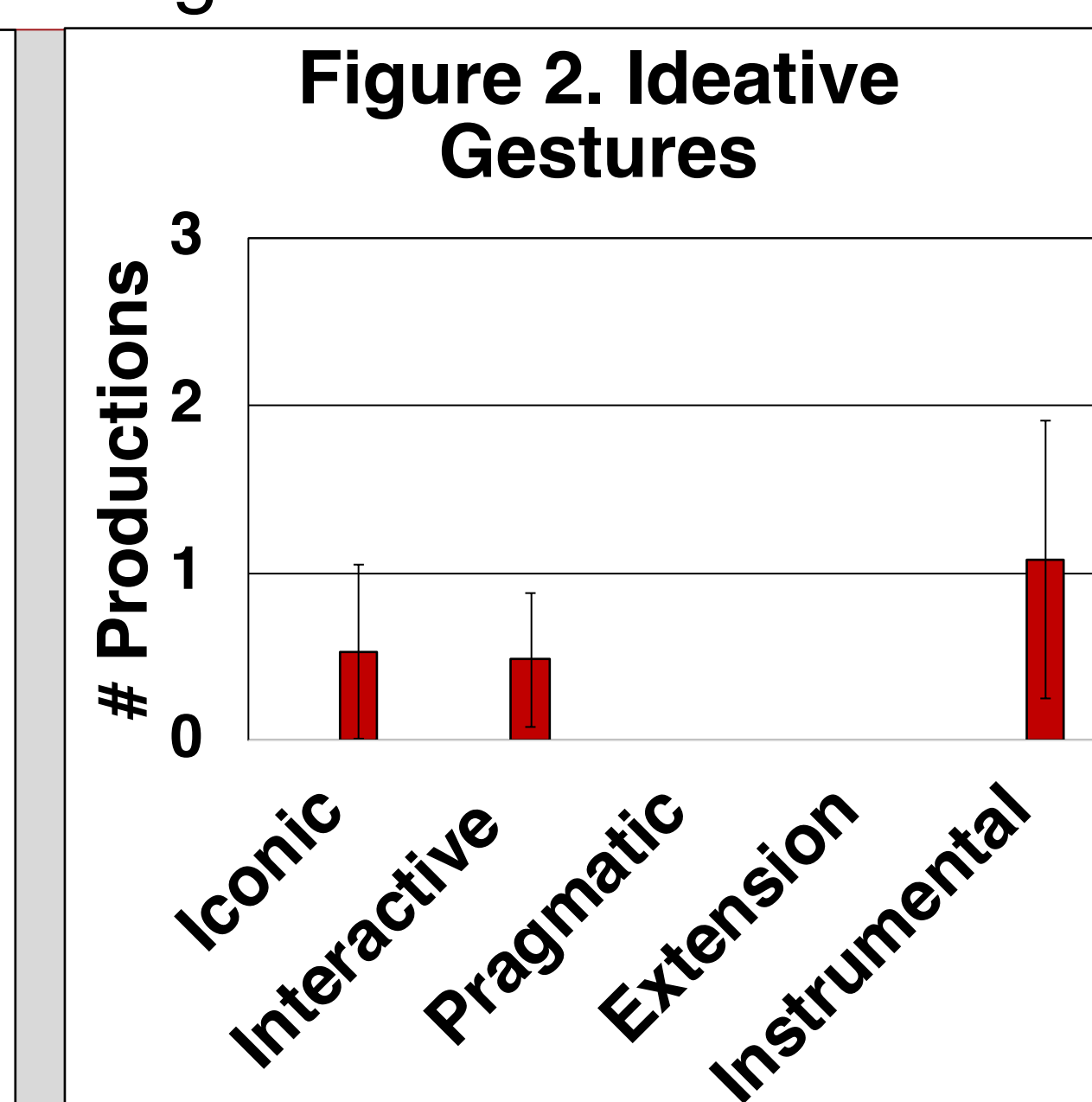
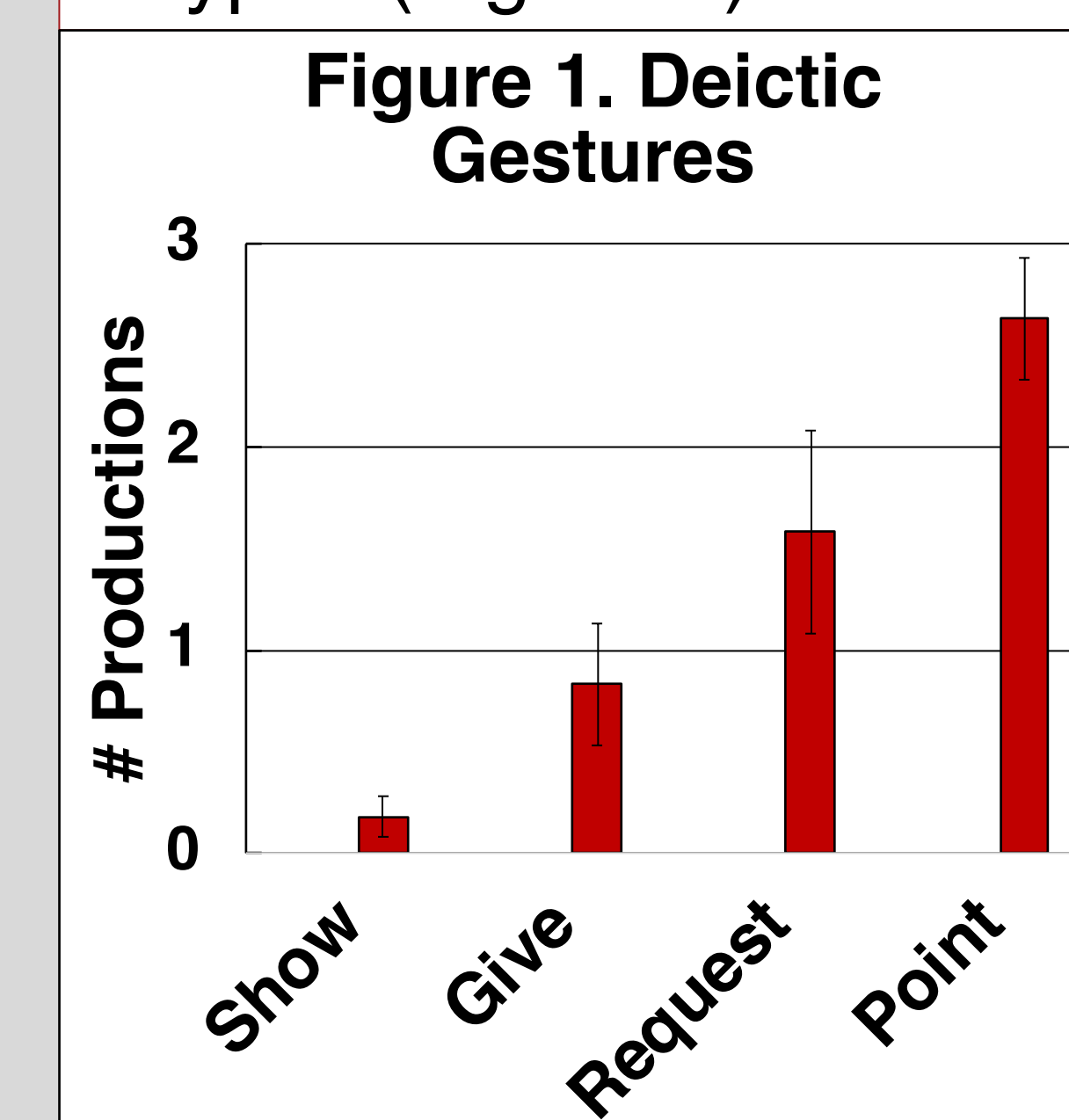
- Forty children [30 males, 10 females] with ASD [mean chronological age = 40 months, mean developmental age = 25 months] participated in 10-minute, play-based sessions as they interacted with a standard set of toys. A gesture classification system was developed (Table 1) and used to obtain the type and amount of gestures used by the children.

➤ **Table 1. Gesture Classification System**

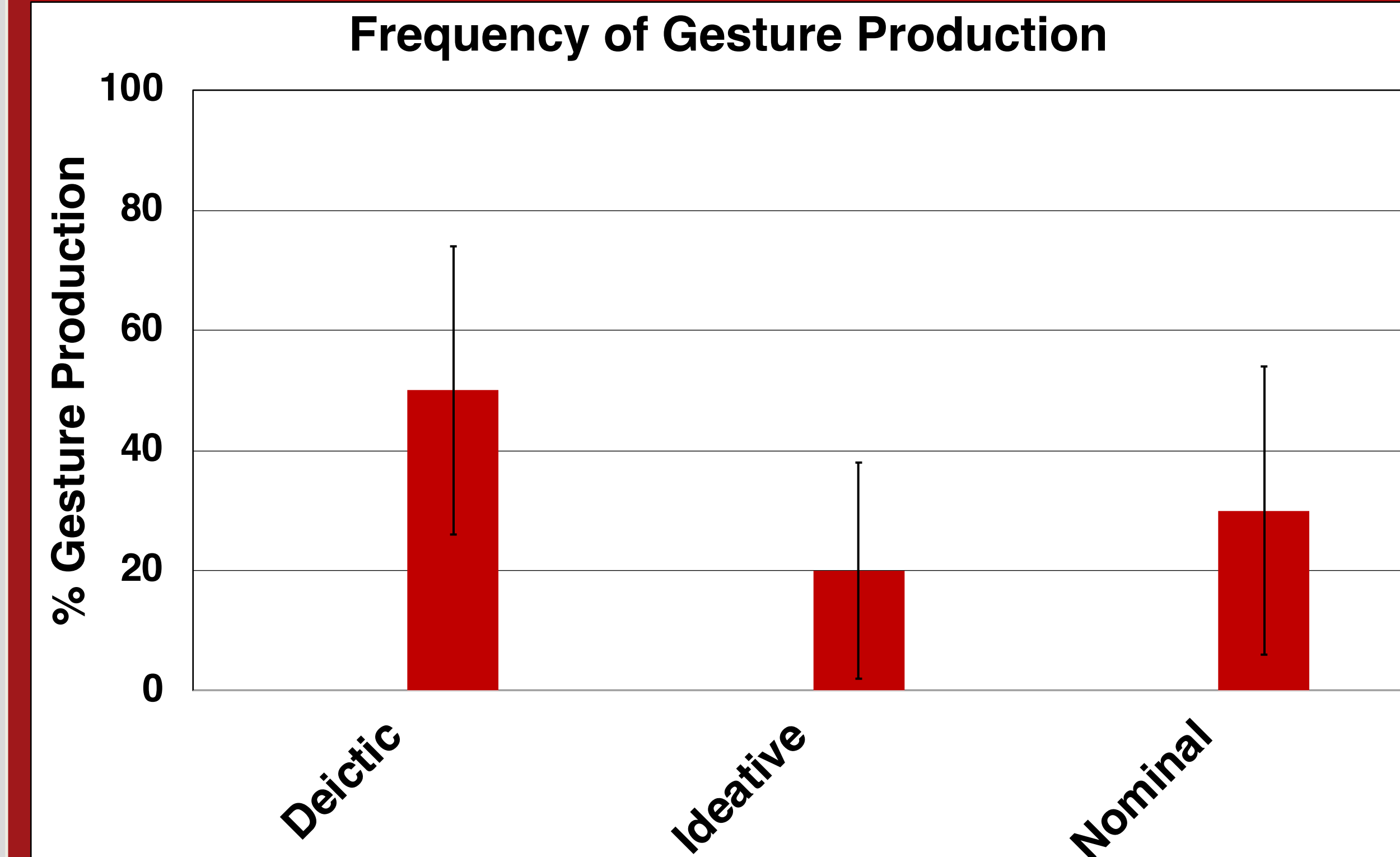
Gesture Type	Definition
Deictic	Referring to item through direct interaction with partner
Show	Holding item in partner's sight
Give	Giving item to partner
Request	Arm and/or hand extending toward partner
Point	Arm and/or hand extending toward item
Ideative	Referring to item through facial, body, and pragmatic-based movement
Iconic	Movement in relation to the item, item quality, or intransitives
Interactive	Culturally defined movement
Pragmatic	Movement emphasizing discourse structure
Extension	Movement not involving partner
Instrumental	Movement causing partner to act
Nominal	Referring to item in hand
Self	Movement in relation to one's own body
Partner	Movement in relation to partner's body
Object	Movement in relation to object

Results

- The average gesture production of children with ASD is displayed according to gesture type in Figures 1 – 3. Deictic gestures were produced more frequently than other gesture types (Figure 4). Instrumental gestures were observed and indicate deviancy.



Results (Cont.)



Conclusions

- The present investigation implemented a robust classification system to characterize gesture production in children with ASD.
- Children with ASD presented with delayed and deviant gestural communication.
- Children with ASD produced fewer total gestures as compared to literature on typical gestural communication. This was also true across gesture subtype: deictic, ideative and nominal.⁴
- Gesture production is a precursor to linguistic and cognitive milestones, and influences both receptive and expressive language abilities.⁶
- Clinicians must objectively assess gestural communication in children with ASD and provide intervention as early as possible.

References

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