

# Understanding Hidden Emotions and False Belief is Equally Easy or Hard for Young Turkish Children: New Findings on Sequential Progressions in Theory of Mind

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## Introduction

- Theory of Mind is the interconnected collection of basic mental states like desires, beliefs, thoughts and feelings.
- Studies with English-speaking children in the US (Wellman & Liu, 2004) and Australia (Peterson et al., 2005), and children in Indonesia (Kuntoro et al., 2010) showed that children gain insights about the mind in a predictable sequence following a stepwise development: DD > DB > KA > FB > HE.
- Studies with Chinese (Wellman et al., 2006) and Iranian (Shahaeian et al., 2011) children indicated a different sequence where knowledge access preceded diverse belief: DD>KA>DB>FB>HE.
- These findings suggest that gaining understanding about a specific aspect of mind understanding might be more functional, and primary in a culture than acquiring others.

## Aim

- We aimed to examine the sequences of ToM understanding in institution-reared preschoolers in Turkey, a country that is regarded as 'relatively collectivistic'.

## Method

### Participants

- 4 child rearing institutions
- 107 children (21 three-, 39 four-, 47 five-year-olds) ( $M = 56.75$ ,  $SD = 9.79$ , range= 36-71 months)
  - 81 boys
  - 26 girls
  - Age of entry ( $M = 35.47$ ,  $SD = 16.99$ , range= 0-65 months)
  - Duration of stay ( $M = 21.28$ ,  $SD = 17.27$ , range= 2-70 months)

### Measures

- Developmental level
  - Ankara Developmental Screening Inventory (AGTE; Savasir et al., 1992)
- Theory of Mind Assessment
  - Theory of mind scale (Wellman & Liu, 2004)

## ToM task Performances and Brief Description for the tasks

Task	n (%)	Description
Diverse Desire (DD)	97 (91)	Child judges that different people have different desires about the same object: After choosing his/her own preferred snack (cookie or carrot), child predicts the choice of other person (who has the opposite preference).
Diverse Belief (DB)	76 (71)	Child judges that different people have different beliefs about the same object, when the true or false belief is not known: After stating his/her belief about the place where a pet is hiding (garage or bushes), child predicts the search behavior of a person who has the opposite belief.
Knowledge Access (KA)	47 (44)	Child sees what is in a box and judges the knowledge of a person who does not see the inside of the box: After seeing a toy in a nondescript box, child judges (yes/no) if a person who has never seen the inside of the box knows what is in the box.
Explicit False Belief (EFB)	21 (20)	Child judges how a person will search when s/he is given that person's mistaken belief: After being told a story about a boy searching for his mittens, s/he is told that his mittens are in the backpack, but the boy thinks they are in the closet. Child judges where the boy looks for his mittens (in the backpack or closet).
Hidden Emotion (HE)	20 (19)	Child judges that a person can feel one emotion but display a different emotion: Child is told a story about a boy whose aunt brings him a book although he wants his aunt to bring him a toy car. Child judges how the boy will feel inside and show on his face.
Contents False Belief (CFB)	13 (12)	Child judges a person's false belief about what is in a distinctive container when the child knows what is inside of the container: Child sees a pencil case and discovers it has a band-aid inside. Child judges the belief of a person who has never seen inside the closed case.

## Pairwise Comparisons with McNemar's test

Tasks	McNemar's test p values
Diverse Desire > Diverse Belief	.001
Diverse Belief > Knowledge Access	.001
Knowledge Access > Explicit False Belief	.001
Explicit False Belief > Hidden Emotion	ns
Hidden Emotion > Contents False Belief	ns
Explicit False Belief > Contents False Belief	ns

## Guttman Scalogram Analysis

Pattern	1	2	3	4	5	Other patterns
Diverse Desire	-	+	+	+	+	
Diverse Belief	-	-	+	+	+	
Knowledge Access	-	-	-	+	+	
Contents False Belief	-	-	-	-	+	
Participants						
3-year-olds (n = 21)	4	8	5	3	0	1
4-year-olds (n = 39)	0	5	19	9	3	3
5-year-olds (n = 47)	1	4	11	15	8	8
Total (N = 107)	5	17	35	27	11	12

DD > DB > KA > FB > HE

Coefficient of  
reproducibility = .94  
Index of consistency = .33  
Not scalable  
(.33 < .50)

DD > DB > KA > FB

Coefficient of  
reproducibility = .97  
Index of consistency = .57  
Scalable  
(.57 > .50)

## Discussion

- HE did not differ from FB in terms of difficulty.
  - Both require understanding of conflicting representations.
  - Exposure to a variety of emotional situations (maltreatment, parental loss, separation) might have increased the children's emotion knowledge and their sensitivity to emotion-eliciting experiences.
  - HE requires understanding one's intention to deceive someone else. Pre-institution experiences could have facilitated institution-reared children's awareness that emotions are sometimes masked for concord.
- The five-item sequence was not scalable.
- The four-item sequence was scalable: DD > DB > KA > FB
  - Individualistic pattern
  - Living with a large group of children might result in frequent exposure to various thoughts and opinions, facilitating the acquisition of diverse belief understanding.