

# **EARLY SOCIOCOGNITIVE BATTERY**

**Social Responsiveness Assessment  
Joint Attention Assessment  
Symbolic Comprehension Assessment**

**Penny Roy & Shula Chiat**

Department of Language and Communication Science  
City University  
Northampton Square  
London EC1V 0HB

e-mail: [p.i.roy@city.ac.uk](mailto:p.i.roy@city.ac.uk),  
[shula.chiat.1@city.ac.uk](mailto:shula.chiat.1@city.ac.uk)

Phone: 020-7040-4656  
020-7040-8238

## **Social Responsiveness Assessment**

This assessment measures a child's gaze at an adult's face following the adult's expression of emotions in response to a series of events. This non-verbal task extends on a procedure developed by Sigman, Kasari, Kwon & Yirmiya (1992).

Sigman, M.D., Kasari, C., Kwon, J.-H. & Yirmiya, N. (1992). Responses to the negative emotions of others by autistic, mentally retarded, and normal children. *Child Development*, 63, 796-80.

### **Materials**

A bag containing 6 props: hammer and peg set with two hammers, nappy, torch with no battery in, mobile phone, small gift box with pretend spider inside, building bricks.

### **Procedure**

The assessment takes the form of a script which incorporates 6 short scenarios leading the assessor to express 6 different emotions: hurt, surprise, anger, distraction, fear, achievement. Expressions of emotion are exaggerated, and may last up to 5 seconds if the child has not responded earlier.

Before starting, set an alarm on the mobile phone to go off after about 5 minutes.

### **Guidelines for script**

**“This morning my little brother gave me this bag of toys especially to play with [child's name]. Let's see what's inside . . .**

**Look, I found a hammer and peg set. Oh, look, there is another hammer for you. Let's do some hammering together”.**

Give the child the small hammer and hammer the pegs down together. Then pretend to hammer your finger saying:

**“Ow!”**

and show facial expression of HURT. [Score child's response]

**“I hurt my finger. I'm going to stop hammering now”**

Kiss your finger better and show the child that you are all right.

**“OK, let's see what other toys we can find in the bag”.**

Rummage around in the bag, pull out the nappy, then show facial expression of SURPRISE.

[Score child's response]

**“What's this? It's a nappy. That's not a toy! Let's see what else inside our bag of toys”.**

Next pull out the torch.

**“Ooh, look it's a torch, it lights up. Let's switch it on”.**

Try and switch the torch on, then show FRUSTRATION/ANGER by facial expression and banging the torch on your hand. [Score child's response].

**“Oh..... it's not working. It hasn't got any batteries. Let's see what else is inside our bag of toys”.**

Next pull out the box.

**“Ooh, a present. I wonder what's inside. Let's open it and see”.**

Open the box slowly, pulling the lid off so that only you and not the child can see what is inside.

Then show a facial expression and body language of FEAR. [Score child's response]

**“Aaaagh, it's a spider... I don't like spiders! Oh, phew, it's only a pretend spider”.**

At the point when the mobile phone goes off (timing may vary), show DISTRACTION as if to say 'what is that noise!' but do not speak. [Score child's response]

**“Oh, it’s my phone! I don’t know who that is. Let’s switch it off. OK, there is another toy in this bag for us to play with. Let’s see what it is”.**

Pull out the building bricks.

**“Let’s see if you can build a big tower”.**

Give the child the bricks and when the tower is built, look impressed at child’s ACHIEVEMENT as if to say ‘wow’ but do not speak. If the child is reluctant to build a tower, the assessor can build one and then look impressed at own achievement. [Score child’s response]

**Scoring**

Responsiveness to the expression of emotion is scored in terms of looks to the **assessor’s face** as the emotion is expressed. Points are awarded as follows:

- 2 - The child looks at the assessor’s face for at least 2 seconds
- 1 - The child looks briefly or fleetingly at the assessor’s face
- 0 - The child does not look at the assessor’s face at all.

Maximum total score for social responsiveness = 12

<b>SCORE CHART FOR SOCIAL RESPONSIVENESS ASSESSMENT</b>			
	Look $\geq$ 2 seconds Score = 2	Fleeting look Score = 1	No look Score = 0
hurt			
surprise			
anger			
fear			
distraction			
achievement			
<b>Total</b>			

## Joint Attention Assessment

This assessment measures a child's gaze switch from object to adult (and vice versa) and monitoring of adult gaze towards an object.

### **Materials**

Egg box of six differently coloured plastic eggs

6 miniature objects to put inside each egg: person, hat, candle, bag, tiger, ring

6 larger objects corresponding to the contents of the eggs: puppet, hat, candle, bag, tiger picture, ring. These are set around the room to the sides of and behind where the child is sitting:

e.g. *tiger picture* behind and to the side of the child; *bag* to the side of you; *ring* on your finger; *puppet* where you can hang it e.g. on door handle; *hat* and *candle* on either side of child.

### **Procedure**

Adult takes egg box out of bag and places on table or floor - slowly.

Adult opens egg box and says “**Let’s see what’s inside . . . . .Oh look! Here are some eggs**”.

Adult either asks child “**Can you give me one egg**” or says “**I am going to look at this one**” and picks up one egg.

Looking at the child, the adult shakes the egg to one side with arm extended *away* from the face, *and does not say anything*. It is important that the egg is at a distance as this makes it easy to distinguish looks towards the adult and looks towards the egg. The adult waits up to 5 seconds to see if the child looks from egg to adult.

Having stimulated interest in the contents of the egg, the adult slowly opens the egg looking at the child mostly but glancing at the egg briefly as you might naturally do, and *without saying anything*, then shows the contents to the child. The adult lets the child look at or play with the toy and keeps looking at the child while the child is engaging with the toy, recording if the child looks at the adult during this time.

The adult then encourages the child to put the toy back, e.g. says “**Shall we put it back in the egg now**”, and as this is happening, says “**I brought my person / tiger today**” and looks in the direction of the object.

If the child fails to respond by follow the adult's gaze, the adult repeats the comment accompanied this time by a point in the direction of the object.

Another egg is then selected and the above procedure is repeated until all the eggs have been opened.

**Scoring**

Measuring gaze switch:

*Either*

Look from egg to adult while adult is shaking egg (i.e. before opening egg)

*or*

Look from toy to adult after the egg has been opened, while showing contents = 1

No look in either of the above conditions = 0

Measuring gaze monitoring:

Look following adult's gaze switch and verbal statement = 2

Look following adult's point and repeated verbal statement = 1

No look in either of the above conditions = 0

Maximum total score for joint attention = 18

**Score chart**

SCORE CHART FOR JOINT ATTENTION ASSESSMENT				
	Gaze switch		Gaze monitoring	
	While shaking egg <i>or</i> While showing contents of egg Score = 1	After adult's gaze+statement Score = 2	After adult's point+statement Score = 1	
person				
hat				
candle				
bag				
tiger				
ring				
<b>Total</b>				

## Symbolic Comprehension Assessment

This non-verbal task draws on a procedure developed by Tomasello, Striano, and Rochat (1999) to measure children's understanding of different levels of symbolic representation.

Tomasello, M., Striano, T. and Rochat, P. (1999). Do young children use objects as symbols? *British Journal of Developmental Psychology*, 17, 563-84.

### Materials

1 chute for rolling objects down (this can be a long box open at each end, with one end resting on a chair or table so that objects will roll down onto floor).

4 practice objects: bag, fork, rattle, flower

For gestural condition, 6 objects: toothbrush, comb, hammer, baby's bottle, sock, scissors

For miniature condition, 6 objects + 6 miniature versions of these: teddy, brush, book, shoe, spoon, t-shirt

For substitute object condition, 6 objects: hat, telephone, crayon, plate, soap, ball + 6 substitutes for these: cup, banana, stick, shell, brick, apple

### Procedure

#### Part 1: Practice condition

Items required	bag, rattle, flower, fork
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The aim of the practice condition is to familiarise the child with the 'game' of choosing an object and rolling it down the chute; correct selection is not a requirement for continuation with the 3 assessment conditions.

The 4 objects are laid out on the table or floor before saying:

***"Here are some things I have brought with me. Here they are on the table/floor. I will ask you for one and you roll it down the chute. Are you ready? Can you find the bag. Now roll it down the chute. . . . . weeeee! Thank you / well done / fantastic!"***

Repeat this procedure with the 3 remaining objects, in the following order (also shown on the Score Chart below):

Flower... Rattle... Fork

*Part 2: Gestural condition*

Items required	toothbrush, comb, hammer, baby's bottle, sock, scissors
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The 6 items are laid out on the table or floor before saying:

***“Here are some more things I have brought with me.  
Now watch what I am going to do!  
Can you find the.....”***

Finish your request by making a gesture associated with the toothbrush, pretending to brush teeth using index finger.

After this demonstration, indicate the set of 6 objects laid out on table/floor using a sweeping gesture and say:

***“Which is the best one?” or “Which one goes best with this?”.***

Then prompt the child to roll the selected object down the chute.

Repeat this procedure for the remaining 5 objects, using the following gestures, in the following order (also shown on Score Chart below):

- Use hand as if holding comb and run it over surface of hair*
- Use hand as if holding hammer and bang with it on surface*
- Use hand as if holding bottle, raise to mouth and pretend to drink from it*
- Use hands as if pulling sock onto foot*
- Use first and second fingers as scissors and pretend to cut with them*

After the child makes each choice, praise the child whether the choice is correct or not. Score the child's first choice.

Always return the selected item to the set so that the child always selects from a set of 6.

*Part 3: Miniature condition*

Items required (full-size and miniature)	teddy, brush, book, shoe, spoon, t-shirt
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The full-size items are laid out on the table or floor before saying:

***“Here are some more toys  
Can you find the ..... (show the miniature teddy)  
Now roll it down the chute... Thank you!”***

Use sweeping gesture and words inviting the child to choose one object and roll it down the chute, as in the Gesture condition above.

Repeat this procedure with the remaining 5 full-size items, in the following order (also shown on Score Chart below):

brush... book... shoe... spoon... t-shirt.

After the child makes each choice, praise the child whether the choice is correct or not. Score the child's first choice.

Always return the selected item to the set so that the child always selects from a set of 6.

*Part 4: Substitute object condition*

Substitute objects	<i>cup, banana, stick, shell, wooden brick, apple</i>
Corresponding real objects	<i>hat, telephone, crayon, plate, soap, ball</i>

The 6 substitute items are laid out on the table or floor. The real items should not be visible at this point.

The items in this condition are presented in two sets to reduce memory load. Introduce the first set by saying:

***“I have got some more things for sending down the chute, I will do some funny things with them, watch what I do! Ready?”***

Then demonstrate the first 3 substitute objects, picking them up one after the other and pretending to use them as you would use their corresponding item:

- Put *cup* on head as a hat
- Put *banana* to ear and mime telephone conversation
- Use *stick* on hand as if writing with a crayon on paper.

Then bring out the 3 corresponding real items one-by-one saying:

***“Can you find the . . .*** (show each real item in turn but do not gesture its use, i.e. hold up hat, phone, crayon).

Also use sweeping gesture inviting the child to choose one object and roll it down the chute.

Repeat this procedure with the second set of objects, again pretending to use them as you would use their corresponding item:

- Pretend to scoop up food from *shell* as if from a plate and pretend to eat
- Use *brick* over hands and/or body as if to soap them
- Throw *apple* in the air and catch it like a ball

Then bring out the 3 corresponding real items one-by-one saying:

***“Can you find the . . .*** (show each real item in turn but do not gesture its use, i.e. hold up plate, soap, ball).

After the child makes each choice, praise the child whether the choice is correct or not. Score the child's first choice.

Always return the selected item to the set so that the child always selects from a set of 6.



### Scoring

One mark is awarded for each object that is correctly selected in each condition.  
Maximum score=18

### Score Chart

SCORE CHART FOR SYMBOLIC COMPREHENSION ASSESSMENT							
Practice							
bag		rattle		flower		fork	
Assessment							
Gesture		Miniature			Substitute object		
toothbrush		teddy		hat			
comb		brush		telephone			
hammer		book		crayon			
bottle		shoe		plate			
sock		spoon		soap			
scissors		t-shirt		ball			
Total							