

“Body Self-Awareness” Interpretation Guide

EXPLORING CHILDREN’S UNDERSTANDING OF BODY SIZE AND BODY PART ORGANIZATION

Background:

As children approach 2 years of age, they begin to show evidence of self-awareness - they can think of themselves as objective, independent beings (Brownell, Zerwas, & Ramani, 2007). One aspect of self-awareness is *body self-awareness*: the ability to think about one’s body as a physical object that can act on other objects (Brownell, Zerwas, & Ramani, 2007). Two dimensions of body self-awareness include **body-size awareness** (understanding that one’s body is an object with physical dimensions such as height and width) and **body topography** (knowing the location of one’s body parts and where they are relative to each other).



Previous research had demonstrated that children start to gain body-size awareness between 1 and 2 years of age. At this time, children start to realize that their bodies take up a certain amount of space (Brownell, Zerwas, & Ramani, 2007) and understand when their bodies are an obstacle to be overcome (Moore, Mealiea, Garon, & Povinelli, 2007). Previous studies had also shown that by 1.5 years, children can visually recognize typical versus scrambled body topography (Slaughter & Heron, 2004). However, the only studies looking at whether a person can recognize their *own* body topography had focused on adults.

In this study, researchers at the University of Pittsburgh aimed to determine when a child’s *own* body topography develops, while also replicating their previous findings regarding body-size awareness (Brownell, Zerwas, & Ramani, 2007). They also intended to determine what relationship might exist between body-size awareness and body topography.

Researchers found:

- Most children start to develop body self-awareness between 20 and 30 months of age.
- In the “doll clothes” body-size awareness task, older children committed fewer errors (tried on the too small clothes less often) than younger children.
- In the “sticker” body topography task, older children were able to correctly place twice as many stickers on the correct location than younger children.
- The two dimensions of body self-awareness (body-size awareness and body topography) seem to be distinct and are not directly associated with each other. However, both dimensions are related to the development of overall self-awareness.

Why is this important?

The ability of a child to understand how their own body is put together and how much space their own body takes up is an important step in the development of a child’s conscious representation of their own body. As this awareness continues to develop, it may eventually contribute to a child’s body image, which develops later in childhood.

Method:

Recruiting Methods:

Introduce yourself to the caregivers, explaining to them that you are demonstrating a study originally conducted at the University of Pittsburgh investigating at what age children start to develop body self-awareness. Ask if their child would like to play a fun game with a doll and stickers.

Important Modifications:

- For this museum activity, we focus on the “doll clothes” task (for body-size awareness) and the “sticker” task (for body topography). In the original study, the researchers used additional tasks to study these abilities; they also included “reflective self-awareness” measures to investigate other components of self-awareness.
- In the original study, researchers placed stickers on an assistant rather than a doll, since a previous study found that children 2 years old and younger had more difficulty going from doll to self than from adult to self. For this activity, we’ve chosen to place stickers on a doll, as there often isn’t a second staff member available to present the activity.

Materials:

- Doll
- 2 sets of doll clothes (e.g. hat, jacket, and shoes)
- Stickers

Doll Clothes Task Activity Instructions (the “study method”)

1. Place the doll and one set of doll clothes on the table. Keep the second set of clothes in the box.
2. Place the hat on the doll’s head. Once the hat is on the doll, hand the child the second hat from the box, saying, “Here’s your hat!”
3. Repeat step 2 with the remaining articles of clothing – always placing the clothing on the doll, then giving the identical piece to the child.
4. Talk with the child’s caregiver about what the original researchers were studying, and about the results they found.

Sticker Task Activity Instructions (the “study method”)

1. Place a set of stickers on the table and introduce the child and adult to the game. “I’m going to put a sticker somewhere on my doll’s body, then I want you put a sticker in the same spot on your body”
2. Place the first sticker on the doll’s nose and explain “Watch, I’m going to put a sticker right there.” Emphasize the action, “See, I put a sticker right there,” and point to the sticker; make sure to not use any body-part names or labels.
3. Give the child one sticker and direct them “Now you put your sticker on you right there, so it’s just like my doll’s.”
4. Repeat steps 2 and 3 with two or three more of the most often known body locations (hand, foot, head, back, or neck). Then repeat with three or four of the least known locations (calf, temple, elbow, forehead, wrist, or nape) (See Appendix A).
5. Talk with the child’s caregiver about what the original researchers were studying, and about the results they found.

Activity Tips:

Keeping kids interested:

- During the sticker activity, move more quickly through the activity by choosing fewer locations.
- If the child wants to play with the stickers more, continue placing stickers on additional body locations.
- While talking to the caregiver, let the child play with the doll.
- To keep older children interested, ask them to explain their behavior in the activities. Why didn't they try on the doll clothes? How did they know where to put their stickers?
- Another way to keep older children interested is to ask them how they think a 1-year-old or a 2-year-old would have behaved in the original study.

Help caregivers observe:

- How many of the most often known body parts can your child identify on their own bodies?
How many of the least known body parts can they identify?
- Does your child try to put on the doll-sized clothing, or do they understand that the hat/jacket/shoes are too small for their own bodies?
- Ask the adult to think about things they've observed or noticed at home related to body size. Do they have a small pet door that their child tried to crawl through? Does the child try to put parts of their bodies into spaces that are too small to get through (e.g. trying to put their head through the balusters of a handrail)?

Results of the Original Study:

Researchers found that most children start to develop body self-awareness between 20 and 30 months of age, and children's performance improved with age. For the body-size activity (body-size awareness), researchers found that older children (30 months) tried to put on the doll clothes fewer times than younger children (20 months). For the sticker activity (body topography), researchers found on average 20 month olds could only locate two or three of the most common parts, while 30 month olds could locate four or five. We begin our activity with the nose because other research has found that the nose is one of the first body parts young children learn and one of the easiest for them to locate.

Researchers also found that the two components of body awareness - knowledge of one's body as a physical object with dimensions (body-size awareness) and the knowledge of where certain body parts are on one's own body (body topography) appear to be distinct and are not directly related to each other. However, both of these aspects are related to a child's overall idea of their own body.

Questions Caregivers May Ask:

Q: What age does my child have to be in order to participate?

A: The original study looked at participants between 20 months and 30 months. However, since this is just a demonstration of the study, children of any age are welcome to participate.

Q: Did my child "pass"?

A: There is no right or wrong way to play with the stickers or doll. This activity is meant to demonstrate how children of different ages perceive their own bodies.

Q: What is the average age that children develop body self-awareness?

A: Children show a basic awareness of the location of their own body parts and their body size around 30 months (2 ½ years of age), but this development continues to mature into the preschool years.

Q: Where can I get more information on the study?

A: You can visit Professor Celia Brownell's website for additional information:

<http://www.pitt.edu/~toddlers/ESDL/brownell.html>.

Activities for Caregivers to Try at the Museum:

Find an item in the museum that represents a human body, such as a human skeleton or an image of a person. Point to a body part, not using any labels, and ask your child if they can point to the same body part on themselves.

Notice the way your child moves about the museum. Does your child try to move through spaces that are too narrow?

Activities for Caregivers to Try at Home:

If you have doll-sized play equipment or furniture, pay attention to how your child plays with these items. Does your child try to use the doll-sized items themselves, even though their body is too large?

Sources and Resources:

Primary Reference:

Brownell, C., Nichols, S., Svetlova M., Zerwas, S., Ramani, G. (2010). The Head Bone's Connected to the Neck Bone: When Do Toddlers Represent Their Own Body Topography? *Child Development*, 81 (3), 797-810.

Additional References:

Brownell, C. A., Zerwas, S., & Ramani, G. B. (2007). "So big": The development of body self-awareness in toddlers. *Child development*, 78(5), 1426-1440.

Moore, C., Mealiea, J., Garon, N., & Povinelli, D. J. (2007). The development of body self-awareness. *Infancy*, 11(2), 157-174.

Slaughter, V., Heron, M., Jenkins, L., Tilse, E., Müller, U., & Liebermann, D. (2004). Origins and Early Development of Human Body Knowledge. *Monographs of the Society for Research in Child Development*, 69(2), I-113.

Acknowledgements:

This activity was originally developed for Living Laboratory® by the Maryland Science Center.

Appendix A

Sticker Task Activity: Body Parts

Always Start with:

Nose

Most known body locations (choose 2-3):

Hand

Foot

Head

Back

Neck

Least known body locations (choose 3-4):

Calf

Temple

Elbow

Forehead

Wrist

Nape