APHASIABANK GESTURE AND DISCOURSE STUDY PROTOCOLS AND BEST PRACTICES MANUAL

IRB #14633 - Test-retest evaluation of spoken discourse and gesture in speakers with aphasia

Contents

Recruitment

Recruitment will be completed virtually via emailing previous study participants and reaching out to aphasia/stroke support groups.

- Previous study participants -->
  https://indiana.sharepoint.com/:x:/r/sites/msteams_0965a7/_layouts/15/Doc.aspx?sourcedoc=%7B8E666AF9-11CD-4F1F-9171-005B1549A6E8%7D&file=Recruitment.xlsx&action=default&mobileredirect=true
- List of known contacts (via Test Retest Ashfoundation study) from 2020 but will be updated as more sources develop -->
  https://indiana.sharepoint.com/:x:/r/sites/msteams_0965a7/_layouts/15/Doc.aspx?sourcedoc=%7B0A4827D9-3079-40A3-B28D-79B1B1FD5E95%7D&file=RecruitmentContacts.xlsx&action=default&mobileredirect=true

Steps to contact participants:

1. Contact participant via preferred method as indicated in the prescreening survey.
2. Schedule both test and retest appointments simultaneously.
3. Make sure confirmation emails (immediately) and reminder emails (1 day before each session) are scheduled to be sent at the appropriate time and contain the following information:
   a. The time and date of both sessions in the appropriate time zone
   b. Virtual meeting link.
   c. Instructions to download virtual meeting software
   d. Materials needed (e.g., reliable Internet, headphones)
   e. Attached documents such as Informed Consent sheet and the Ideal Environment Checklist

Email Templates

Initial Email to gauge interest

<u>Aphasic Group:</u>

Hello!

My name is Grace Oeding, and I work in Indiana University's Neural Research Laboratory. I hope this email finds you well! I am reaching out today because you previously participated in one of our lab's studies and indicated you would be interested in participating in future studies. I wanted to let you know that starting in January, we are beginning recruitment for a new study! We will be looking at storytelling and gestures in people with aphasia across two sessions, a test and a retest.

Eligible participants will fit the following criteria:

- Fluent English speaker (can speak other languages)
- Diagnosis of aphasia after any brain injury, which you have had for at least six months
- Able to see and hear well enough to participate in an online study
- 18-85 years old.
- No concurrent neurological disorder or progressive neurodegenerative disease

Participation in this study is voluntary, paid, and non-invasive. The study will consist of two all-day sessions, broken up into a morning session and afternoon session, spaced approximately 1 week apart.

At this time, we are gauging interest and will begin scheduling in January, however, if you would like to fill out our prescreening survey, I have attached the link below!

[survey-link]

If you have any questions or are interested in participating, please contact me at <u>goeding@iu.edu</u> or call or text me at (812) 606-4540.

Thank you,

Grace Oeding

<u>Control Group:</u>

Hello!

My name is Grace Oeding, and I work in Indiana University's Neural Research Laboratory. I hope this email finds you well! I am reaching out today because you previously participated in one of our lab's studies and indicated you would be interested in participating in future studies. I wanted to let you know that starting in January, we are beginning recruitment for a new study! We will be looking at storytelling and gestures across two sessions, a test and a retest.

Eligible participants will fit the following criteria:

- Fluent English speaker (can speak other languages)
- No history of brain injury or other neurological disorder
- 30-85 years of age
- Able to see and hear well enough to participate in an online study

Participation in this study is voluntary, paid, and non-invasive. The study will consist of two all-day sessions, broken up into a morning session and afternoon session, spaced approximately 10 days apart.

At this time, we are gauging interest and will begin scheduling in January, however, if you would like to fill out our prescreening survey, I have attached the link below!

[survey-link]

If you have any questions or are interested in participating, please contact me at goeding@iu.edu or call or text me at (812) 606-4540.

Thank you,

Grace Oeding

Returning participants

Hello,

My name is Grace Oeding, and I work in Indiana University's Neural Research Laboratory. I hope this email finds you well! I am reaching out because you previously participated in one of our lab's studies and indicated you would be interested in participating in future studies. Currently, we are seeking participants for a new study looking at the consistency of gesture usage and discourse across two time points, specifically in people with aphasia. Aphasia is a language disorder that may result from brain injuries or incidents, such as a traumatic brain injury or a stroke. The findings will help establish consistent and accurate testing in the field of speech language pathology and improve both research and clinical inclusion of language sample analysis. For this study we need participants with aphasia and participants without aphasia (to act as a control group.)

Participation in this study is voluntary, paid, and non-invasive. The study will consist of two all-day sessions, broken up into a morning session and afternoon session, spaced approximately 10 days apart. We are in search of both people with aphasia and participants to act as controls.

Eligible participants with aphasia will fit the following criteria:

- Native English speaker
- Diagnosis of aphasia (WAB-R)
- History of *brain injury*

- ≥ six months post-onset
- ≥ 18 years of age
- No concurrent neurological disorder or progressive neurodegenerative disease
- Eligible participants (control group) will fit the following criteria:

Native English speaker

- Typical cognition (≥ 26 on MOCA)
- No history of brain injury or other neurological disorder
- 45-80 years of age
- At least 10 years of education

If you have any questions or are interested in participating, please contact me at goeding@iu.edu or call or text me at (812)606-4540.

Thank you,

Grace Oeding

Scheduling Participants

Hello,

Thank you so much for your interest in our study! Because our study requires two sessions, a test and a retest, we will need to schedule both times simultaneously. Both days will include 1 testing session in the morning that should last 1-1.5 hours and one session in the afternoon that will last 2-3 hours.

I am contacting you today to schedule those sessions. The following times and dates are available:

[insert dates and times]

Please let me know what works best for you! Once we confirm the date I will make sure you will be receiving reminder emails or texts before each sessions.

If you have any questions, please reach out to me at my email, goeding@iu.edu or by phone (call or text) at (812)606-4540.

Please review the attached documents, "How to join a Teams meeting" and "Ideal Study Environment" prior to your first research session.

Thank you,

Grace Oeding

<u>Confirmation/ Reminder Email</u>

Hello!

This is a reminder that we have a session tomorrow, _____. Please follow the instructions below and let me know if you have any questions or difficulties joining the meeting!

<mark>Include Zoom information. And ideal environment checklist.</mark>

Thank you,

Grace

<u>Test Subjects 1 & 2</u>

Control:

Hello!

Thank you so much for your interest in our study and for filling out the prescreening survey! Our team is beginning to schedule test sessions, and I am writing today to ask if you would be interested in being one of our first participants. Because you would be a participant in one of our first data collections, we may want to ask a few questions about your experience after the testing is complete. You would still be compensated the exact same amount as any future participants and the sessions will take around the same amount of time. If you would be able to schedule these sessions for either the week of January 23rd or the 30th please let me know! We will need to schedule two sessions simultaneously, about 1 week apart.

As a reminder, each of the two sessions will involve about 3 hours of testing, either in the morning or afternoon and you will be compensated with a flat rate of $150 in an Amazon E-gift card.

Thank you,

Grace

Aphasia:

Hello!

Thank you so much for your interest in our study and for filling out the prescreening survey! Our team is beginning to schedule test sessions, and I am writing today to ask if you would be interested in being one of our first participants. Because you would be a participant in one of our first data collections, we may want to ask a few questions about your experience after the testing is complete. You would still be compensated the exact same amount as any future participants and the sessions will take around the same amount of time. If you would be able to schedule these sessions for either the week of January 23rd or the 30th please let me know! We will need to schedule two sessions simultaneously, about 1 week apart.

As a reminder, each of the two sessions will involve a full day of testing (about 6 hours) with a two-hour break for lunch and you will be compensated with a flat rate of $250 in an Amazon E-gift card.

Thank you,

Grace

Inclusion Parameters

People with Aphasia:

- Native English speaker
- Diagnosis of aphasia (WAB-R)
- History of *brain injury*
- ≥ six months post-onset
- ≥ 18 years of age
- No concurrent neurological disorder or progressive neurodegenerative disease
- PHQ<10

Controls:

- Native English speaker
- Typical cognition (≥ 26 on MOCA)
- No history of brain injury or other neurological disorder
- 45-80 years of age
- At least 10 years of education
- PHQ<10

Redcap Information

Changing Information on Redcap

- When making any edits on Redcap, BE VERY CAREFUL

- Several actions can cause accidental record deletion of Record IDs or other important data

  - For example, deleting or altering defined events will cause all data for the accompanied record IDs to be deleted.

- If you DO want to delete individual forms for records, follow these steps:

1. Navigate to the "User Rights" menu.
2. Find your own user account. Note: If you are part of a user role, you can click on the user role to edit that role's user rights; if you are not part of a user role, click on your name and hit "Edit user privileges" in the pop up window.
3. Find the option that says "Delete Records."
4. Check the box that follows the "Delete Records" option and then click the "Save Changes" button.
5. Navigate to any form in the record you want to delete.
6. Scroll all the way to the bottom and select the "Delete data for THIS FORM only" button..
7. Click on the "Delete data for THIS FORM only" that appears in the ensuing pop-up screen.
8. Do this for any other records you want to delete.
9. After you are done deleting, go back to your account's user rights and uncheck the checkbox behind the "Delete Records" option. This will prevent future accidental deletions.

Scheduling with Redcap

(https://redcap.vanderbilt.edu/consortium/videoplayer.php?video=scheduling02.mp4&referer=redcap.uits.iu.edu&title=Scheduling)

1. Navigate to the scheduling tab under data collection

2. Choose Create New Schedule and enter Study ID

3. Generate schedule

4. After entering times and confirming the correct time between days for Aphasia vs Control participants, choose Create Schedule

5. You can find scheduled events in the Calendar tab under Applications

To sync the Redcap calendar to a Google calendar:

1. In Redcap, select "Sync calendar to external application"
2. Copy the link under "Live calendar feed: Add calendar from URL/Internet"
3. Open google calendar
4. Click the plus sign next to "Other calendars" on the bottom left of the page
5. Select "From URL" and paste the link copied from Redcap

Opening Survey Links on Redcap (to be used during testing)

1. After navigating to Record Status Dashboard, choose the Study ID of the participant you are testing
2. Select the survey you wish to open
3. At the top right, select the drop-down menu called "Survey Options" and select Open Survey
4. From here you can give remote control to the participant if they will be filling out the survey themselves

Data Collection for Aphasic Group

Testing will include 2 sessions- one session in the morning and one in the afternoon:

Day 1 AM (~9-12 AM):

Approximately 2 hour long, will include the following tasks:

- Informed Consent and Demographic/Intake form (30 minutes)
- Western Aphasia Battery (45 minutes)
- Limb Apraxia (10 minutes)
- PHQ9 (5-10 minutes)

Day 1 PM:

- Aphasiabank Discourse battery

Day 2 AM:

- TALSA battery (50 minutes)
- Philadelphia Naming Test (30 minutes)
- Verb Naming Test (20 minutes)
- Concrete and abstract picture description task (30 minutes)

Day 2 PM:

- Repeat Aphasiabank Discourse battery

Day 1 AM Procedure:

Before Participant Arrives:

- ✓ Begin Teams session and have all materials and instructions ready to go at least 15 minutes early.
- ✓ Confirm you have all the materials and instructions you need for each test.
- ✓ Perform Internet connection check:
    - ❏ Ethernet connection (preferred) or reliable Wi-Fi. If possible, confirm the reliability of your Internet by determining bandwidth and speed Hardware
    - ❏ Screen sharing device (i.e., computer, iPad) with an adequate display resolution (roughly 9 in. of screen) is required
    - ❏ Built-in or external webcam/camera device
    - ❏ Functioning audio system is required (i.e., microphone, speaker)
    - ❏ Headphones for investigator and participant are recommended
    - ❏ Recommended that device can stand on its own (i.e., not required to be handheld)
- ✓ Make sure your own experimental environment is ideal before participant arrives:
    - ❏ Close household windows to reduce background noise
    - ❏ Notify other people that you are in a session
    - ❏ Remove pets from the room (if possible)
    - ❏ Turn phone and other devices to silent or off
    - ❏ Close door(s) to room (if possible)
    - ❏ Close all unnecessary programs and windows on computer

Equipment Check:

"Hello! Before we start today, let's make sure that our equipment and surroundings are in good shape."

"Can you hear me?"

> *If no reply, make sure your microphone and their microphone is not muted.*
>
> > *If you are not muted, send first statement in chat. Wait for 30 seconds and try again.*
>
> *If yes, say:* "Okay, great. Now let's test your microphone. Say a few sentences."
>
> > *If you can't hear them clearly, ask them to speak more directly into the microphone and try again.*

Once the sound check is complete, say: **"Now that we can both hear each other clearly, let's quickly check video feeds. Can you see me?"**

> *If not, trouble shoot the problem.*
>
> *If yes, and you cannot see the participant, make sure they have their video feed unmuted.*
>
> *If yes, and you can see the participant, move on.*

"Last thing to check is to make sure we are both in quiet environments without distractions. Let's go through the checklist together."

Go through the entire Environment Check checklist located below:

Environment and experiment setup

- ❑ Image (i.e., camera placement) of participant and investigator should include head and shoulders in the center of the screen
- ❑ If necessary, the camera angle should be adjusted to include participant gesticulation
- ❑ Lighting should be adequate for clear visibility (i.e., facial features, object manipulation)
- ❑ Make sure camera is able to see full upper body including any space where gesturing may occur.

To prevent potential distractions from the experimental environment:

- ❑ Close household windows to reduce background noise
- ❑ Notify other people that you are in a session
- ❑ Remove pets from the room (if possible)
- ❑ Turn phone and other devices to silent or off
- ❑ Close door(s) to room (if possible)
- ❑ Close all unnecessary programs and windows on computer

If these conditions are not met, ask participant to adjust their chair, computer positioning, or body angle until their full upper body is in view with no obstructions so that ALL gestures are able to be seen.

✓ To confirm that the recording is going to download to your computer, make sure that you see Pause/Stop Recording buttons on the bottom control bar.

Informed Consent

"Hello [*potential participant name*], I am Grace Oeding from Indiana University Bloomington and the NEURAL Research Lab. This study is being run by Dr. Brielle Stark, who is reachable by phone (812-855-7760) or email (bcstark@iu.edu). You may also reach me for questions or concerns by phone (812-606-4540) or email (goeding@iu.edu).

We are investigating how things involving language, like storytelling, are similar across testing sessions. This will help us tailor assessment and treatment of disorders such as aphasia, which is a language disorder acquired after a brain injury to the left hemisphere. During this study, we will audio-video record your responses to some cognitive and language assessments. Should you choose to participate, there are two sessions included in this research, which will take place roughly 10 +/- 3 days apart. Each session will consist of two parts: one in the morning and one in the afternoon. Your confidentiality will be protected to the best of our ability by using a HIPAA-compliant virtual meeting system (Zoom Health) and saving all videos and protected health information to our HIPAA-compliant cloud server system (Box Health) and database (REDCap). In enrolling in this study, your data will be assigned to a unique, anonymous identifier number, rather than your name. Your participation is voluntary and you may choose to stop participating at any time.

If you have any questions, please feel free to ask now. [*participant asks questions*]

Now we will go through the verbal consent procedure. I am going to share my screen if you would like to read along with me as I read it out loud.

Open [Informed Consent_PWA](#) and share screen with participant.

[*Go through and read informed consent*]

We would like to make this recording accessible on a research database, called AphasiaBank, which is password-protected and only used by qualified researchers. Do you consent to have your data included on this database? [*participant answers YES or NO*]

We would like to enroll you in this study. Do you consent to participate into this study?" [*participant answers YES or NO]*

Intake Form

"Now we will complete an online intake form. The server is secure, and I can read the questions to you if you want. This information will help us know more about you!"

"I am going to share my screen with you again. This time, you will be able to click, scroll, and type. You will be able to type your answers to our intake form this way."

Share the RedCap window with the participant.

Go to the control bar and click "Remote control" to give control to the participant.

"You may now type your answers."

After the participant is finished, say: **"Thank you, please stop moving the cursor or typing."**

MAKE SURE YOU SAVE THE FORM BEFORE EXITING THE SCREEN.

<u>Western Aphasia Battery 30-45 minutes</u>

Materials:

- ❑ WAB Remote-Adapted Stimulus (digital)
- ❑ WAB Record Form (print)
- ❑ telepractice and the WAB guidelines

Part 1:

Spontaneous Speech

    A. Conversational Questions

Materials: None

Directions: Read the stimulus as written.

* Repeat each question one time upon request or if the participant does not respond within approximately 10 seconds. If the participant gives an incomplete response to a multi-part item (8 and 4), administer the probe printed below the questions to facilitate a complete response. *****

1. How are you today?

A one or two word response is ok here. If the response is *I don't know*, probe by asking, how do you feel today?

2. Have you participated in a study with our lab before?

3. What is your first and last name?

Response is considered incorrect if participant gives only his or her first or last name.

4. What is your full address?

A correct response contains participant's street number, street name, city, and state. Vague or incomplete responses are considered correct.

5. What is/ was your occupation?

A correct response (*bank teller* or *farmer)* is accurate but does not need to be grammatically correct *(banktelling).* Vague responses (e.g., *you know, money*) are incorrect.

6. Can you summarize what we'll do in this study in one sentence?

    B. Picture Description

Materials: Remote adapted stimulus book

Directions: Open tab with the remote adapted stimulus book and say, **"Tell me what is happening in this picture."** If the patient lists single words, say, **"Try to talk in sentences."** Ask for a more complete response if he or she produces only a few words. Encourage the patient to pay attention to all aspects of the picture.

Record responses on a separate page or in the record book.

It is important to encourage participants to use full sentences. Single items, nouns, or infinitives (e.g. kite, girl, running) will receive credit for Information Content, they will negatively impact the participant's Fluency, Grammatical Competence, and Paraphasias score.

See examiner's manual for specific scoring instructions after testing ends.

Auditory Verbal Comprehension

A. Yes/No Questions

Materials: None

Directions: Say, "**I'm going to ask you some questions. Answer Yes or No.**"

Task: The patient must answer Yes or No to several types of questions: personal (e.g., Is your name Smith?), environmental (e.g., Are the lights on in this room?), and general (e.g., Do you eat a banana before you peel it?)

If the participant answers in sentences or chats with you, instruct him or her to respond with Yes or No only. Reinforce the participants after they get in the pattern of answering Yes or No, but avoid nodding or commenting on specific items. If the participant continues to answer in sentences or chat, repeat the instructions to respond with Yes or No. Eventually, any response can be accepted as long as it is a verbal or gestural expression of agreement or disagreement, even if it is embedded in an irrelevant sentence. For instance, the answer to item 1 (Is your name Smith?) could be "No, since I moved", and this would be accepted as correct since "No" was embedded in the participant's response.

1. Is your name Smith?
2. Is your name Brown?
3. Is your name _____? (Patient's last name)
4. Do you live in _____? (Nearby city where patient does not live.)
5. Do you live in ____? (Patient's town of residence.)
6. Do you live in ____? (Another city where patient does not live.)
7. Are you a man/woman?
8. Are you a doctor?
9. Am I a man/woman?
10. Is the door closed?
11. Is this a hotel?
12. Are you in your house? (Actual location)
13. Are you wearing red pajamas?
14. Will paper burn in fire?
15. Does March come before June?
16. Do you eat a banana before you peel it?
17. Does it snow in July?
18. Is a horse larger than a dog?
19. Do you cut grass with an ax?

B. Auditory Word Recognition

Materials: Stimulus book.

Directions: Refer to specific directions for each set of items.

For items 1-6, use page 7 of the remote stimulus book. Give remote control to the participant Say, "Move your cursor to the ___," or "Show me the ___.

1. Cup
2. Matches
3. Pencil
4. Flower
5. Comb
6. Screwdriver

For items 7-36, begin with page 8 of the remote stimulus book. Say, "Point to the ___" or "Show me the ____."

7. Matches
8. Cup
9. Comb
10. Screwdriver
11. Pencil
12. Flower

Forms

13. Square
14. Triangle
15. Circle
16. Arrow
17. Cross
18. Cylinder

Letters

19. J
20. F
21. B
22. K
23. M
24. D

Numbers

25. 5
26. 61
27. 500

28. 1867
29. 32
30. 5000

Colors

31. Blue
32. Brown
33. Red
34. Green
35. Yellow
36. Black

For items 37-42, if an object is not in the room, substitute a comparable item and note the substituted item. Say, "Point to the___" or "Show me the."

Furniture

37. Window
38. Chair
39. Desk/ Bed
40. Light
41. Door
42. Ceiling

Body Parts

43. Ear
44. Nose
45. Eye
46. Chest
47. Neck
48. Chin

Fingers

49. Thumb
50. Ring finger
51. Index finger
52. Little finger
53. Middle finger

For items 54-60, the patient must get both the side (right or left) and body part correct to receive credit.

54. Right ear
55. Right shoulder
56. Left knee
57. Left ankle
58. Right wrist

59. Left elbow
60. Right cheek

C. Sequential Commands

Materials: None

Directions: Say, "I am going to ask you to do some things." Read each item.

1. Raise your hand.
2. Shut your eyes.
3. Point to the chair.
4. Point to the ceiling, then to the floor.

Now, ask the participant to arrange their pen, comb, and book in front of them. You may have to ask them to adjust their camera so you can see the manipulation of the objects.

5. Point to the pen and the book.
6. Point with the pen to the book.
7. Point to the pen with the book.
8. Point to the comb with the pen.
9. With the book point to the comb.
10. Put the pen on top of the book, then show it to me.
11. Put the comb on the other side of the pen and turn over the book.

Repetition

Materials: None

Directions: Say, "Repeat these words. Say_____." Present the words in the order listed.

1. Bed
2. Nose
3. Pipe
4. Window
5. Banana
6. Snowball
7. Forty-five
8. Ninety-five percent
9. Sixty-two and a half
10. The pastry cook was satisfied.
11. The telephone is ringing
12. He is not coming back.
13. Delicious freshly baked bread.
14. No ifs, ands, or buts.
15. Pack my box with five dozen jugs of liquid detergent.

Naming and Word Finding

A. Object Naming

Materials: Book, ball, knife, cup, safety pin, hammer, toothbrush, eraser, padlock, pencil, screwdriver, key, paper clip, watch, comb, rubber band, spoon, tape, fork, matches.

Directions: Present the objects in the order listed. Say, "What is this," or "What is the name of this object?"

1. Book
2. Ball
3. Knife
4. Cup
5. Safety pin
6. Hammer or Scissors
7. Toothbrush
8. Eraser
9. Padlock
10. Pencil
11. Screwdriver
12. Key
13. Paper clip
14. Watch
15. Comb
16. Rubber band
17. Spoon
18. Tape
19. Fork
20. Matches

B. Word Fluency

Materials: Stopwatch

Directions: Say, **"Name as many animals as you can in one minute."** If the patient is hesitant, cue him or her by saying, "Think of a domestic animal like the horse, or a wild animal like the tiger."

Write responses in the response book.

C. Sentence Completion

Materials: none

Directions: Say, "**Complete what I say. For example, ice is… (cold).** Present the test items.

1. The grass is____.
2. Sugar is____.
3. Roses are red, violets are _____.
4. They fought like cats and _____.
5. Christmas is in the month of _____.

D. Responsive Speech

Materials: None

Directions: Say, "Answer the following questions."

1. What do you write with?
2. What color is snow?
3. How many days are in a week?
4. Where do nurses work?
5. Where can you get stamps?

Limb Apraxia

Materials:

- ❑ Apraxia Screen of TULIA (print or digital)
  - o **https://www.sralab.org/sites/default/files/2017-07/apraxia_screen_of_tulia_ast.pdf**

Instructions:

Imitation

"Seven gestures are demonstrated in a mirror fashion, imitate them as precisely as possible"

1. Bring thumb extended on forehead, other finger point upward.
2. Wipe dust from shoulder.

"For the next five gestures, imagine holding a tool or an object in hand, don't use your fingers as a tool."

3. Drink from a glass
4. Smoke a cigarette
5. Use a hammer
6. Use scissors
7. Use a stamp to postmark

Pantomime

"Now gestures are asked. Listen very carefully and perform them as precisely as possible."

8. Show as if someone is crazy
9. Make a threatening sign

Again, imagine holding a tool or an object in hand, don't use the fingers.

PHQ9

Materials:

❑ PHQ9 Redcap Survey (printed or digital)

Instructions:

I will now ask you to complete a survey privately, I will step away for a few minutes while I allow you control of my computer screen.

Open the PHQ9 Redcap Survey and begin remote control to the participant.

"The first part of the session is now complete. We will now take a [*insert break time*] and reconvene at [*insert time*] to resume testing."

Day 1 PM Procedure:

Aphasia Bank Protocol:

Materials:

- ❏ Protocol Manual Script (print or digital below)

<u>Instructions:</u>

1. Allow ample time for as full a response as each participant can provide using this protocol script.
2. For those unable to respond to any of the prompts for the Stroke Story, skip the Important Event task and proceed to the first Picture Description (Broken Window).
3. If the participant responds to the Broken Window picture description prompt, continue with the protocol, changing the order if that helps, and returning to the initial questions if appropriate.
4. If the participant does not respond to the Broken Window picture, and you believe these tasks are too difficult, you can discontinue as you see fit.
5. To facilitate transcription, the examiner's speech, including verbal encouragers, should be kept to a minimum.
6. Use nonverbal encouragers (e.g., head nods, facial expressions, eye contact) instead of verbal encouragers (e.g., "I see", "mhm", "yeah") whenever possible.

Section 1: Free Speech Samples

Start with a preliminary unrecorded conversation for social exchanges, signing consent forms, explaining about recording the session, answering any questions, and so forth.

BEGIN RECORDING

If your institution requires it, record the following preamble about informed consent, then lead in to the first recorded protocol item (Stroke Story). If not, go straight to the Stroke Story.

Investigator:

"This participant has signed an informed consent form. These data can be used for _____ (specify: research, teaching, or any purpose). These data are not to be used for _____ (specify any restrictions)."

A. STROKE STORY and COPING

1. "I'm going to be asking you to do some talking. How do you think your speech is these days?"

If no response in approximately 10 seconds, prompt:

"How's your talking?"

Listen, encourage full response. If no response, prompt:

"Are you having trouble with your talking?"

2. "Do you remember when you had your stroke?"

If yes, **"Please tell me about it."**

If no, "**Well, how about your first memories after the stroke. What can you tell me about that?"**

If no response in approximately 10 seconds, prompt:

"Try to tell me about the day you had your stroke."

Listen, encourage full response. If no response, prompt:

"Do you remember your stroke?"

At a natural juncture add:

3. "Tell me about your recovery. What kinds of things have you done to try to get better since your stroke?"

If no response in approximately 10 seconds, prompt:

"Tell me about any changes you've needed to make in your daily life."

If no response, prompt: **"Did you have any therapy after your stroke?"**

"Now I'm going to ask you to do a few more things where you need to talk. Please talk as much as you can about each one, because we're really interested in knowing about your language."

B. IMPORTANT EVENT

"Thinking back, can you tell me a story about something important that happened to you in your life? It could be happy or sad or from any time --from when you were a kid or more recently."

If no response in approximately 10 seconds, prompt:

"For instance, you could tell me about a trip you took or something about your family or your work --anything."

If no response, go on to Picture Descriptions.

SECTION II: PICTURE DESCRIPTIONS

A. BROKEN WINDOW

"Now I'm going to show you these pictures."

Present picture series.

If no response in 10 seconds, give second prompt:

If needed, point to each picture sequentially, giving the prompt:

For each panel, if no response, provide the prompt:

If no response at all, prompt:

4B. REFUSED UMBRELLA

Present picture series.

If no response in 10 seconds, give second prompt:

If needed, point to each panel sequentially, giving the prompt:

For each panel, if no response, provide the prompt:

If no response at all, prompt:

C. CAT RESCUE

Present picture.

If no response in 10 seconds, give second prompt:

If fewer than 2 utterances, give third prompt:

"Anything else you can tell me about the story?"

If no response at all, prompt:

"Is the cat stuck in the tree?"

SECTION lII: STORY NARRATIVE

CINDERELLA

Open link for Cinderella story:
https://aphasia.talkbank.org/protocol/english/participant/sequences/Cinderella/index.html

"I'm going to ask you to tell a story. Have you ever heard the story of Cinderella?"

(Make note of answer for demographic data. If answer is no, ask participant to tell a fairy tale s/he knows.)

"Do you remember much about it? These pictures might remind you of how it goes. Take a look at the pictures, and then I'll close the page and ask you to tell me the story in your own words."

Allow participant to look through book (assist with page turning if needed), and then prompt:

"Now tell me as much of the story of Cinderella as you can. You can use any details you know about the story, as well as the pictures you just looked at."

If participant gives a response of fewer than three utterances, or seems to falter, allow 10 seconds, then prompt:

"What happened next?"

or

"Go on."

Continue until participant concludes story or has clearly finished.

If no response, prompt:

"Did Cinderella go to the ball and meet the prince?"

SECTION IV: PROCEDURAL DISCOURSE

PEANUT BUTTER AND JELLY SANDWICH

Do not use a picture stimulus for this task.

"Let's move on to something a little different. Tell me how you would make a peanut butter and jelly sandwich."

If no response in 10 seconds, give second prompt:

"If you were feeling hungry for a peanut butter and jelly sandwich, how would you make it?"

If no response, prompt:

"Do you like eating peanut butter and jelly sandwiches?"

PROCEDURAL 2- LAUNDRY

Do not use a picture stimulus for this task.

"Now explain to me how you do your laundry."

If no response in 10 seconds, give second prompt:

"If you had dirty clothes, how would you do your laundry?"

If no response, prompt:

"Have you ever done laundry before?"

PROCEDURAL 3 (TEST ONLY)- GETTING DRESSED IN THE MORNING

Do not use a picture stimulus for this task.

"How would you get dressed in the morning on a normal weekday?"

Day 2 AM Procedure:

TALSA Battery

Materials

❑ TALSA Battery website ready to be shared with participant
  o **https://isrweb.temple.edu/talsa/shortterm.php**

Instructions

❑ Open TALSA Battery website and navigate to Word Span-Pointing under Short Term Memory Tests --> Digit/Word Span
❑ Ensure sound is shared
❑ When test is ready to begin, give remote control to participant.
❑ Save the excel score sheet immediately after testing
❑ Repeat this process for Digit Span-Pointing

Philadelphia Naming Test

Materials

❑ PNT PowerPoint (available digitally and printed)
  o Have printed copy for yourself and the PowerPoint ready to be shared on screen

Instructions to Subject:

"I'm going to ask you to name some pictures. A picture will appear on the computer screen. Your job is to name the picture using only one word."

https://indiana.sharepoint.com/:p:/r/sites/msteams_0965a7/_layouts/15/Doc.aspx?sourcedoc=%7B49546620-D554-4A2D-B10E-AD7E736A430B%7D&file=S-PNT-A.ppt&action=edit&mobileredirect=true

NOTE: There are no practice trials for the Short Forms (A,B). If practice is deemed necessary, download the full 175-item Philadelphia Naming Test, which contains 10 practice items that do not appear in either of the Short Forms.

Instructions to Examiner:

This is a task of naming ability. Before running the test, ensure that the subject will be audio taped. The computer will simultaneously present a short beep and a picture, which the subject has been asked to name. After the subject has finished responding to an item, give him/her feedback: e.g.., "good, that's a fish", or "actually, they're looking for garage here", or some variation thereof. Allow a maximum of 30 seconds for the subject's response.

Procedure

- Open Power Point and start the slide show.
- Read test instructions on slide 1 aloud to patient.
- Start tape recorder.
- Administer 10 practice trials; followed by 175 naming trial items.
- Allow a 30 second deadline to name each picture. • After the subject has finished responding to an item, give him/her feedback: e.g, "good, that's a fish", or "actually, they're looking for garage here", or some variation thereof.
- Allow a break between items #88 (tractor") and #89 (queen) if necessary, as a brief rest period or as a stop location if the examiner feels that the test would be best administered over 2 sessions. (Make sure to make a notation if the test is administered over 2 sessions as the scoring of perseverations will be influenced by this factor).

Verb Naming Test

Materials

- ❑ VNT PowerPoint (available digitally and printed)
  - ○ Have printed copy for yourself and the PowerPoint ready to be shared on screen
- ❑ **https://indiana.sharepoint.com/sites/msteams_0965a7/Shared%20Documents/General/%5BBox%20Health%5D%20Research%20Labs/%5BBox%20Health%5D%20Neural%20Research%20Lab/APHASIABANK%20GESTURE%20&%20DISCOURSE%20STUDY/AdminDocs/Testing%20Materials/VNT.pdf**
- ❑

Administration Instructions:

Record this test but do not transcribe.

1. The clinician says: **"I'm going to show you some pictures. Each will show an action or someone doing something. Your task is to name the action in each picture. Respond as quickly and as well as you can."**
2. Begin with practice items (P1 and P2). Present each item individually. The clinician says: **"Tell me what's happening here,"** pointing to the part of the picture illustrating the target action. If the participant does not respond to an item within 10 seconds or responds incorrectly, the clinician points to the target action and names it. For these practice items only, if at any point the participant appears to need further explanation of the task or of an individual picture, the clinician may provide it.
3. Continue with test items. Present each item individually, pointing to the target action and saying, **"Tell me what's happening here."** Allow 10 seconds for response.
4. If the participant does not respond within 10 seconds, go to the next test item. If the participant's first response (occurring within 10 seconds) is incorrect, provide the following prompt: **"Can you tell me another word for what's happening?"** The clinician may again point to the target action in the picture during this prompt.

Scoring Instructions:

1. Score 1 point for each correct response. The following responses are scored as correct:

   a. Correct verb in any form (e.g., wash, is/was washing, washes);
   b. Semantically appropriate verb with the same argument structure as the target (e.g., clean or scrub for wash, push for shove, mix for stir, mail for send, show for give);

c. Phonemic paraphasias that are recognizable as the target word (at least 50% of phonemes must be correct) or mild dysarthric errors (e.g., keaning/clining/gleaning for cleaning). Note: If error is a recognizable word, such as leaning for cleaning, this is scored as incorrect.

The following responses are scored as incorrect:

a. No response;
b. Non-verb response (e.g., girl for eat);
c. Incorrect verb with argument structure differing from target (e.g., laugh for wash).

2. Tally the number of correct verbs by type.

3. Option: write/transcribe participant's response in the space provided.

Concrete and abstract picture description task

Materials

- ❑ Gesture_ConcreteAbstract" PowerPoint
- ❑ https://indiana.sharepoint.com/:p:/r/sites/msteams_0965a7/_layouts/15/Doc.aspx?sourcedoc=%7B17E091E8-83F0-46AC-88D7-AD2F4F0CFFBB%7D&file=Gesture_ConcreteAbstract.pptx&action=edit&mobileredirect=true

Instructions

Task1: Abstract vs. concrete images

- *Aim:* To examine how individuals with aphasia and aged-match controls use gesture to describe **abstract vs concrete images.**

After sharing your screen, instruct participants to describe each image they see.

"For this task, I am going to show you some pictures. Please describe the images you see as soon as you see it. Feel free to use gestures or any method to help you describe the images."

After the concrete images, present the abstract images. Ask the participant to describe each image they see.

"These next images will look different. Again, please try your best to describe the images you see."

 Task2: Address description task

- *Aim:* To examine how individuals with aphasia and aged-match controls use gesture to describe **how to get from one point to another:** Home, grocery store, family/friend home to their own home

1. "Can you describe the path you take to get from home to your grocery store"

2. "Tell me how to get from a friend/relative's home back to your home"

3. "Can you describe the path you took to get from your home to your work".

4. "Can you describe the path you take to get from your home to your local gas station"

Day 2 PM Procedure:

[Repition of discourse tasks]

BEGIN RECORDING

If your institution requires it, record the following preamble about informed consent, then lead in to the first recorded protocol item (Stroke Story). If not, go straight to the Stroke Story.

Investigator:

"This participant has signed an informed consent form. These data can be used for _____ (specify: research, teaching, or any purpose). These data are not to be used for _____ (specify any restrictions)."

A. STROKE STORY and COPING

1. "I'm going to be asking you to do some talking. How do you think your speech is these days?"

If no response in approximately 10 seconds, prompt:

"How's your talking?"

Listen, encourage full response. If no response, prompt:

"Are you having trouble with your talking?"

2. "Do you remember when you had your stroke?"

If yes, **"Please tell me about it."**

If no, "**Well, how about your first memories after the stroke. What can you tell me about that?"**

If no response in approximately 10 seconds, prompt:

"Try to tell me about the day you had your stroke."

Listen, encourage full response. If no response, prompt:

"Do you remember your stroke?"

At a natural juncture add:

3. "Tell me about your recovery. What kinds of things have you done to try to get better since your stroke?"

If no response in approximately 10 seconds, prompt:

"Tell me about any changes you've needed to make in your daily life."

If no response, prompt: **"Did you have any therapy after your stroke?"**

B. IMPORTANT EVENT

"Thinking back, can you tell me a story about something important that happened to you in your life? It could be happy or sad or from any time --from when you were a kid or more recently."

If no response in approximately 10 seconds, prompt:

"For instance, you could tell me about a trip you took or something about your family or your work --anything."

If no response, go on to Picture Descriptions.

SECTION II: PICTURE DESCRIPTIONS

A. BROKEN WINDOW

"Now I'm going to show you these pictures."

Present picture series.

"Take a little time to look at these pictures. They tell a story. Take a look at all of them, and then I'll ask you to tell me the story with a beginning, a middle, and an end. You can look at the pictures as you tell the story"

If no response in 10 seconds, give second prompt:

"Take a look at this picture (point to first picture)and tell me what you think is happening."

If needed, point to each picture sequentially, giving the prompt:

"And what happens here?"

For each panel, if no response, provide the prompt:

"Can you tell me anything about this picture?"

If no response at all, prompt:

"Is the boy kicking the ball through the window?"

4B. REFUSED UMBRELLA

Present picture series.

"Here are some more pictures that tell a story. Take a look at all of them, and then I'll ask you to tell me the story with a beginning, a middle, and an end. Again, you can look at the pictures as you tell the story."

If no response in 10 seconds, give second prompt:

"Look at this picture (point to first panel) and tell me what you think is happening."

If needed, point to each panel sequentially, giving the prompt:

"And what happens here?"

For each panel, if no response, provide the prompt:

"Can you tell me anything about this picture?"

If no response at all, prompt:

"Did the boy refuse the umbrella?"

C. CAT RESCUE

Present picture.

"Here is another picture. Look at everything that's happening and then tell me a story about what you see. Tell me the story with a beginning, a middle, and an end."

If no response in 10 seconds, give second prompt:

"Take a look (point to picture)and tell me any part of the story."

If fewer than 2 utterances, give third prompt:

"Anything else you can tell me about the story?"

If no response at all, prompt:

"Is the cat stuck in the tree?"

SECTION lII: STORY NARRATIVE

CINDERELLA

Open link for Cinderella story:
https://aphasia.talkbank.org/protocol/english/participant/sequences/Cinderella/index.html

"I'm going to ask you to tell a story. Have you ever heard the story of Cinderella?"

(Make note of answer for demographic data. If answer is no, ask participant to tell a fairy tale s/he knows.)

"Do you remember much about it? These pictures might remind you of how it goes. Take a look at the pictures, and then I'll put the book away and ask you to tell me the story in your own words."

Allow participant to look through book (assist with page turning if needed), and then prompt:

"Now tell me as much of the story of Cinderella as you can. You can use any details you know about the story, as well as the pictures you just looked at."

If participant gives a response of fewer than three utterances, or seems to falter, allow 10 seconds, then prompt:

"What happened next?"

or

"Go on."

Continue until participant concludes story or has clearly finished.

If no response, prompt:

"Did Cinderella go to the ball and meet the prince?"

SECTION IV: PROCEDURAL DISCOURSE

PEANUT BUTTER AND JELLY SANDWICH

Do not use a picture stimulus for this task.

"Let's move on to something a little different. Tell me how you would make a peanut butter and jelly sandwich."

If no response in 10 seconds, give second prompt:

"If you were feeling hungry for a peanut butter and jelly sandwich, how would you make it?"

If no response, prompt:

"Do you like eating peanut butter and jelly sandwiches?"

PROCEDURAL 2- LAUNDRY

Do not use a picture stimulus for this task.

"Now explain to me how you do your laundry."

If no response in 10 seconds, give second prompt:

"If you had dirty clothes, how would you do your laundry?"

If no response, prompt:

"Have you ever done laundry before?"

PROCEDURAL 4 (RETEST ONLY)- GROWING A FLOWER

Do not use a picture for this task

"Now explain how you would grow a flower in a garden or pot."

If no response in 10 seconds, prompt:

"If you had to plant a flower, how would you make sure it grows?"

Data Collection for Control Group

Testing will include 2 sessions:

Session 1: 9-12 or 2-5

- Informed consent and intake procedure
- MOCA (10-15 minutes)
- PHQ9 (5-10 minutes)
- Discourse battery (45-60 minutes)

Sessions 2: 9-12 or 2-5

- WAIS IV
    o Digit span
    o Arithmetic
    o Letter number sequencing
- Concrete and abstract picture description task
- Repeat discourse battery

Day 1 Procedure:

Before Participant Arrives:

- ✓ Begin Teams session and have all materials and instructions ready to go at least 15 minutes early.
- ✓ Perform Internet connection check:
  - ❑ Ethernet connection (preferred) or reliable Wi-Fi. If possible, confirm the reliability of your Internet by determining bandwidth and speed Hardware
  - ❑ Screen sharing device (i.e., computer, iPad) with an adequate display resolution (roughly 9 in. of screen) is required
  - ❑ Built-in or external webcam/camera device
  - ❑ Functioning audio system is required (i.e., microphone, speaker)
  - ❑ Headphones for investigator and participant are recommended
  - ❑ Recommended that device can stand on its own (i.e., not required to be handheld)
- ✓ Make sure your own experimental environment is ideal before participant arrives:
  - ❑ Close household windows to reduce background noise
  - ❑ Notify other people that you are in a session
  - ❑ Remove pets from the room (if possible)
  - ❑ Turn phone and other devices to silent or off
  - ❑ Close door(s) to room (if possible)
  - ❑ Close all unnecessary programs and windows on computer

Equipment Check:

"Hello! Before we start today, let's make sure that our equipment and surroundings are in good shape."

"Can you hear me?"

If no reply, make sure your microphone and their microphone is not muted.

If you are not muted, send first statement in chat. Wait for 30 seconds and try again.

If yes, say: "Okay, great. Now let's test your microphone. Say a few sentences."

If you can't hear them clearly, ask them to speak more directly into the microphone and try again.

Once the sound check is complete, say: **"Now that we can both hear each other clearly, let's quickly check video feeds. Can you see me?"**

If not, trouble shoot the problem.

If yes, and you cannot see the participant, make sure they have their video feed unmuted.

If yes, and you can see the participant, move on.

"Last thing to check is to make sure we are both in quiet environments without distractions. Let's go through the checklist together."

Go through the entire Environment Check checklist located below:

Environment and experiment setup

❑ Image (i.e., camera placement) of participant and investigator should include head and shoulders in the center of the screen
❑ If necessary, the camera angle should be adjusted to include participant gesticulation
❑ Lighting should be adequate for clear visibility (i.e., facial features, object manipulation)
❑ Make sure camera is able to see full upper body including any space where gesturing may occur.

To prevent potential distractions from the experimental environment:

❑ Close household windows to reduce background noise
❑ Notify other people that you are in a session
❑ Remove pets from the room (if possible)
❑ Turn phone and other devices to silent or off
❑ Close door(s) to room (if possible)
❑ Close all unnecessary programs and windows on computer

To confirm that the recording is going to download to your computer, make sure that you see Pause/Stop Recording buttons on the bottom control bar.

Informed Consent

"Hello [*potential participant name*], I am Grace Oeding from Indiana University Bloomington and the NEURAL Research Lab. This study is being run by Dr. Brielle Stark, who is reachable by phone (812-855-7760) or email (bcstark@iu.edu). You may also reach me for questions or concerns by phone (812-606-4540) or email (goeding@iu.edu).

We are investigating how things involving language, like storytelling, are similar across testing sessions. This will help us tailor assessment and treatment of disorders such as aphasia, which is a language disorder acquired after a brain injury to the left hemisphere. During this study, we will audio-video record your responses to some cognitive and language assessments. Should you choose to participate, there are two sessions included in this research, which will take place roughly 10 +/- 3 days apart. Your confidentiality will be protected to the best of our ability by using a HIPAA-compliant virtual meeting system (Zoom Health) and saving all videos and protected health information to our HIPAA-compliant cloud server system (Box Health) and database (REDCap). In enrolling in this study, your data will be assigned to a unique, anonymous identifier number, rather than your name. Your participation is voluntary and you may choose to stop participating at any time.

If you have any questions, please feel free to ask now. [*participant asks questions*]

Now we will go through the verbal consent procedure. I am going to share my screen if you would like to read along with me as I read it out loud.

**Open [Informed Consent_Control](#)
and share screen with participant.**

[*Go through and read informed consent*]

We would like to make this recording accessible on a research database, called AphasiaBank, which is password-protected and only used by qualified researchers. Do you consent to have your data included on this database? [*participant answers YES or NO*]

We would like to enroll you in this study. Do you consent to participate into this study?" [*participant answers YES or NO]*

Intake Form

"Now we will complete an online intake form. The server is secure, and I can read the questions to you if you want. This information will help us know more about you!"

"I am going to share my screen with you again. This time, you will be able to click, scroll, and type. You will be able to type your answers to our intake form this way."

Share the RedCap window with the participant.

Go to the control bar and click "Remote control" to give control to the participant.

"You may now type your answers."

After the participant is finished, say: "Thank you, please stop moving the cursor or typing."

MAKE SURE YOU SAVE THE FORM BEFORE EXITING THE SCREEN.

• Return to the Data Status Dashboard.

MOCA Administration

Materials:

- ❑ MOCA hard copy (for scoring)
- ❑ MOCA digitial copy (for participant to view and edit while screen sharing)

Instructions:

"Before we begin with the assessments, I have a quick screening assessment. I want you to answer my questions to the best of your ability."

"I am going to share my screen with you."

• Share the window with MOCA_visualreq

• Please make sure that the window with the participant's face is always enlarged and clearly visible for recording purposes. Try to not completely obscure the test stimuli #.

"Now, I am going to share control of my cursor with you. Only one of us can move the cursor at a time. I will tell you when it is time to move the cursor."

• Share remote access by clicking the "remote control" button on the control bar at the top of the screen.

• Then, click on the green bar that says "_____ is controlling screen." This will allow you to see the tool bar.

• Click "Annotate." It will give you a separate tool bar with several options. Click "Draw" so the participant can draw on your screen.

- ❖ Make sure the format color is not white

"This page is simply to practice drawing with the cursor. Draw or write something to help you get comfortable with the cursor. I will not move my cursor while you are drawing. You may now use the cursor."

Once the participant is comfortable, begin the MOCA.

"Now that you are comfortable with that, please stop moving the cursor."

• On Annotation tool bar, click "Clear" → "All drawings"

• Switch to "Mouse" and scroll down to the next page.

Visuospatial/Executive

"For the first task, please draw a line, going from a number to a letter in ascending order. Begin here [point to (1)] and draw a line from 1 then to A then to 2 and so on. End here [point to (E)]."

Scoring: one point if the subject successfully draws the following pattern:
1 −A- 2- B- 3- C- 4- D- 5- E, without drawing any lines that cross. **Any error that is not immediately self-corrected earns a score of 0.**

Cube

• **On Annotation tool bar, click "Draw"**

"Begin"

"Next, I want you to copy this drawing as accurately as you can, in the space below."
Scoring: One point is allocated for a correctly executed drawing.

• Drawing must be three-dimensional

• All lines are drawn

• No line is added

• Lines are relatively parallel and their length is similar (rectangular prisms are accepted)

A point is not assigned if any of the above-criteria are not met.

Clock

"Now, I want you to draw a clock, putting in all of the numbers and showing the time 10 past 11."

Scoring:
Contour (1 pt.): the clock face **must be a circle** with only minor distortion acceptable (e.g., slight imperfection on closing the circle);

Numbers (1 pt.): all clock numbers must be present with **no additional numbers**; numbers must be in the **correct order** and **placed in the approximate quadrants** on the clock face; Roman numerals are acceptable; numbers **can be placed outside the circle** contour;

Hands (1 pt.): there **must be two hands jointly indicating the correct time**; the hour hand must be clearly shorter than the minute hand; hands **must be centered** within the clock face with their junction close to the clock center.

A point is not assigned for a given element if any of the above-criteria are not met.

"Okay thank you. You can stop drawing now. Please do not touch the cursor."

•On the Annotation tool bar, click "Save." (It will take a screen shot of the drawings into your local folder.)

•After you save the drawings, click "Clear" → "All drawings."

•Exit the annotation tool bar.

•Then on the control bar, click "Remote access" → "Abort control."

<u>Naming</u>

<u>Next page</u>: **"What are the names of these animals?"**

<u>Scoring:</u> One point each is given for the following responses: (1) camel or dromedary, (2) lion, (3) rhinoceros or rhino.

<u>Memory</u>

<u>Next page, blank:</u> **Verbally go through the rest of the MOCA:**

<u>Memory</u>:

<u>Trial 1</u>: **"This is a memory test. I am going to read a list of words that you will have to remember now and later on. Listen carefully. When I am through, tell me as many words as you can remember. It doesn't matter in what order you say them."**

<u>Trial 2</u>: **"I am going to read the same list for a second time. Try to remember and tell me as many words as you can, including words you said the first time."**

At the end of the second trial, say: **"I will ask you to recall those words again at the end of the test."**

<u>Scoring:</u> No points are given for Trials One and Two.

<u>Attention</u>

<u>Numbers forward</u>: **"I am going to say some numbers and when I am through, repeat them to me exactly as I said them."**

<u>Numbers reverse</u>: **"Now I am going to say some more numbers, but when I am through you must repeat them to me in the backwards order."**

<u>Scoring:</u> Allocate one point for each sequence correctly repeated.

<u>Letters/Vigilance</u>: **"I am going to read a sequence of letters. Every time I say the letter A, tap your hand once. If I say a different letter, do not tap your hand."**

"For best sound, please use your entire hand and tap loudly. If possible, adjust the monitor of your computer so that I can see your hand. Let's quickly try that out to make sure that I can hear you."

Scoring: Give one point if there is zero to one errors (an error is a tap on a wrong letter or a failure to tap on letter A).

Serial 7 Subtraction: **"Now, I will ask you to count by subtracting seven from 100, and then, keep subtracting seven from your answer until I tell you to stop."** *Give this instruction twice if necessary.*

Scoring: Give no (0) points for no correct subtractions, 1 point for one correction subtraction, 2 points for two-to-three correct subtractions, and 3 points if the participant successfully makes four or five correct subtractions. Count each correct subtraction of 7 beginning at 100. Each subtraction is evaluated independently; that is, **if the participant responds with an incorrect number but continues to correctly subtract 7 from it, give a point for each correct subtraction**. For example, a participant may respond "92 – 85 – 78 – 71 – 64" where the "92" is incorrect, but all subsequent numbers are subtracted correctly. This is one error and the item would be given a score of 3.

Language

Sentence Repetition:

"I am going to read you a sentence. Repeat it after me, exactly as I say it."

After response: **"Now I am going to read you another sentence. Repeat it after me, exactly as I say it."**

Scoring: Allocate 1 point for each sentence correctly repeated. **Repetition must be exact.**

Be alert for errors that are omissions (e.g., omitting "only", "always") and substitutions/additions (e.g., "John is the one who helped today;" substituting "hides" for "hid", altering plurals, etc.).

Verbal Fluency:

"Tell me as many words as you can think of that begin with a certain letter of the alphabet that I will tell you in a moment. You can say any kind of word you want, *except for proper nouns* **(like Bob or Boston),** *numbers, or words that begin with the same sound but have a different suffix, for example, love, lover, loving.* **I will tell you to stop after one minute. Are you ready? [Pause] Now, tell me as many words as you can think of that begin with the letter F. [time for 60 sec]. Stop."**

Scoring: Allocate one point if the subject generates 11 words or more in 60 sec. Record the subject's response in the bottom or side margins.

Abstraction:

"Tell me how an orange and a banana are alike."

If the subject answers in a concrete manner, then say only one additional time: "Tell me another way in which those items are alike".
If the subject does not give the appropriate response (fruit), say, "Yes, and they are also both fruit."
Do not give any additional instructions or clarification.

"Now, tell me how a train and a bicycle are alike."

"Now tell me how a ruler and a watch are alike."

The following responses are **not** acceptable: Train-bicycle = they have wheels

Scoring: Only the last two item pairs are scored. Give 1 point to each item pair correctly answered. The following responses are acceptable:

Train-bicycle = means of transportation, means of travelling, you take trips in both;

Ruler-watch = measuring instruments, used to measure.

The following responses are **not** acceptable: Train-bicycle = they have wheels; Ruler-watch = they have numbers.

Delayed Recall:

"I read some words to you earlier, which I asked you to remember. Tell me as many of those words as you can remember."

Scoring: Allocate 1 point for each word recalled freely <u>without any cues</u>.

Orientation:

"Tell me the date today."

If the subject does not give a complete answer, then say: "Tell me the [year, month, exact date, and day of the week]."

"Now, tell me the name of this place, and which city it is in."

Scoring: Give one point for each item correctly answered. The subject must tell the exact date and the exact place (name of hospital, clinic, office). **No points are allocated if subject makes an error of one day for the day and date.**

If total score < 26,

"Thank you for answering those questions. Unfortunately, you do not qualify for our current project. I appreciate your time. Dr. Stark will be in touch to give you your e-gift card."

If score < 26, Log the amount of time spent in the session in the calendar where you scheduled your session.

If total score ≥ 26,

"Thank you for answering those questions. We are all set to move forward."

• Stop sharing the MOCA screen.

PHQ9

Materials:

- ❑ PHQ9 Redcap Survey (printed or digital)

Instructions:

I will now ask you to complete a survey privately, I will step away for a few minutes while I allow you control of my computer screen.

Open the PHQ9 Redcap Survey and begin remote control to the participant.

Aphasia Bank Protocol:

<u>Instructions:</u>

1. Allow ample time for as full a response as each participant can provide using this protocol script.
2. For those unable to respond to any of the prompts for the Stroke Story, skip the Important Event task and proceed to the first Picture Description (Broken Window).
3. If the participant responds to the Broken Window picture description prompt, continue with the protocol, changing the order if that helps, and returning to the initial questions if appropriate.
4. If the participant does not respond to the Broken Window picture, and you believe these tasks are too difficult, you can discontinue as you see fit.
5. To facilitate transcription, the examiner's speech, including verbal encouragers, should be kept to a minimum.
6. Use nonverbal encouragers (e.g., head nods, facial expressions, eye contact) instead of verbal encouragers (e.g., "I see", "mhm", "yeah") whenever possible.

Section 1: Free Speech Samples

Start with a preliminary unrecorded conversation for social exchanges, signing consent forms, explaining about recording the session, answering any questions, and so forth.

BEGIN RECORDING

If your institution requires it, record the following preamble about informed consent, then lead in to the first recorded protocol item (Stroke Story). If not, go straight to the Stroke Story.

Investigator:

"This participant has signed an informed consent form. This allows data to be kept on Aphasiabank.

I am going to ask you to do some talking.

Please feel free to gesture in addition to your speech."

A. ILLNESS STORY AND COPING

Question 1: **"In this research project, I ask people who've had strokes to tell me what they remember about when they had their stroke. Since you haven't had a stroke, I wonder if you could tell me what you remember about any illness or injury you've had."**
If no response in 10 seconds, prompt:

"Tell me about any time you've been sick or hurt."
At a natural juncture, add:

Question 2: **"Tell me about your recovery from that illness (or injury). What kinds of things did you do to get better?"**
If no response in 10 seconds, prompt:

"Tell me about any things you did to get well."

Question 3: **"Have you had any experience with people who have a difficult time communicating?"**

If yes, **"Please tell me what the problems were and what you did about it."**

If no, **"Have you ever had trouble communicating with someone, like talking to people from another country?"**

If no response in 10 seconds, prompt:

"Tell me about a time when you had trouble communicating with someone or someone had trouble communicating with you."

B. IMPORTANT EVENT

"Thinking back, can you tell me a story about something important that happened to you in your life? It could be happy or sad or from any time --from when you were a kid or more recently."

If no response in approximately 10 seconds, prompt:

"For instance, you could tell me about a trip you took or something about your family or your work --anything."

If no response, go on to Picture Descriptions.

SECTION II: PICTURE DESCRIPTIONS

A. BROKEN WINDOW

"Now I'm going to show you these pictures."

Present picture series.

"Take a little time to look at these pictures. They tell a story. Take a look at all of them, and then I'll ask you to tell me the story with a beginning, a middle, and an end. You can look at the pictures as you tell the story"

If no response in 10 seconds, give second prompt:

"Take a look at this picture (point to first picture)and tell me what you think is happening."

If needed, point to each picture sequentially, giving the prompt:

"And what happens here?"

For each panel, if no response, provide the prompt:

"Can you tell me anything about this picture?"

If no response at all, prompt:

"Is the boy kicking the ball through the window?"

4B. REFUSED UMBRELLA

Present picture series.

"Here are some more pictures that tell a story. Take a look at all of them, and then I'll ask you to tell me the story with a beginning, a middle, and an end. Again, you can look at the pictures as you tell the story."

If no response in 10 seconds, give second prompt:

"Look at this picture (point to first panel) and tell me what you think is happening."

If needed, point to each panel sequentially, giving the prompt:

"And what happens here?"

For each panel, if no response, provide the prompt:

"Can you tell me anything about this picture?"

If no response at all, prompt:

"Did the boy refuse the umbrella?"

C. CAT RESCUE

Present picture.

"Here is another picture. Look at everything that's happening and then tell me a story about what you see. Tell me the story with a beginning, a middle, and an end."

If no response in 10 seconds, give second prompt:

"Take a look (point to picture)and tell me any part of the story."

If fewer than 2 utterances, give third prompt:

"Anything else you can tell me about the story?"

If no response at all, prompt:

"Is the cat stuck in the tree?"

SECTION lII: STORY NARRATIVE

CINDERELLA

Open link for Cinderella story:
https://aphasia.talkbank.org/protocol/english/participant/sequences/Cinderella/index.html

"I'm going to ask you to tell a story. Have you ever heard the story of Cinderella?"

(Make note of answer for demographic data. If answer is no, ask participant to tell a fairy tale s/he knows.)

"Do you remember much about it? These pictures might remind you of how it goes. Take a look at the pictures, and then I'll put the book away and ask you to tell me the story in your own words."

Allow participant to look through book (assist with page turning if needed), and then prompt:

"Now tell me as much of the story of Cinderella as you can. You can use any details you know about the story, as well as the pictures you just looked at."

If participant gives a response of fewer than three utterances, or seems to falter, allow 10 seconds, then prompt:

"What happened next?"

or

"Go on."

Continue until participant concludes story or has clearly finished.

If no response, prompt:

"Did Cinderella go to the ball and meet the prince?"

SECTION IV: PROCEDURAL DISCOURSEPEANUT BUTTER AND JELLY SANDWICH

Do not use a picture stimulus for this task.

"Let's move on to something a little different. Tell me how you would make a peanut butter and jelly sandwich."

If no response in 10 seconds, give second prompt:

"If you were feeling hungry for a peanut butter and jelly sandwich, how would you make it?"

If no response, prompt:

"Do you like eating peanut butter and jelly sandwiches?"

PROCEDURAL 2- LAUNDRY

Do not use a picture stimulus for this task.

"Now explain to me how you do your laundry."

If no response in 10 seconds, give second prompt:

"If you had dirty clothes, how would you do your laundry?"

If no response, prompt:

"Have you ever done laundry before?"

PROCEDURAL 3 (TEST ONLY)- GETTING DRESSED IN THE MORNING

Do not use a picture stimulus for this task.

"How would you get dressed in the morning on a normal weekday?"

Day 2 Procedure

WAIS IV

Digit span

For **Digit Span Forward**, the examinee is read a sequence of numbers and recalls the numbers in the same order. For **Digit Span Backward**, the examinee is read a sequence of numbers and recalls the numbers in reverse order. For **Digit Span Sequencing**, the examinee is read a sequence of numbers and recalls the numbers in ascending order.

- Materials
    - Administration and Scoring Manual
    - Record Form
- Discontinue Criteria
    - Forward: Discontinue after scores of 0 on both trials of an item.
    - Backward: Discontinue after scores of 0 on both trials of an item.
    - Sequencing: Discontinue after scores of 0 on both trials of an item.

General Directions:

1. Digit Span includes three tasks: Digit Span Forward, Backward, and Sequencing. Administer all three tasks to the examinee.
2. Each test item is composed of two trials. Administer both trials of each item.
3. Read each trial verbatim at the rate of one digit per second, dropping your voice slightly on the last digit in the sequence. Pause to allow the examinee to respond.
4. If the examinee begins to respond before you have finished reading the trial, present the remainder of the trial and allow the examinee to respond. Award appropriate credit for the response and then say, **Remember to wait until I'm finished before you start.**
5. Do not repeat any trial. If the examinee asks you to repeat a trial, say, **I cannot repeat the sequence. Just take your best guess.**
6. If an examinee provides multiple responses to a trial or self-corrects after his or her initial response, score only the intended response. If it is not clear which one is the intended response, say, **You said [insert examinees' response] and you said [insert examinees' response]. Which one did you mean?** Score the intended response.

7. Provide assistance on the sample items of Backward and Sequencing only. Proceed to Item 1 even if the examinee is unable to respond correctly to any trial of the sample items.
8. For sequencing only, the same number may be included more than once in a single trial. If the examinee asks if his or her response should include repeated numbers, say, **You may have to say the same number more than one time.**

Scoring

- Correct responses are listen on the Record Form and in the Administration manual
- Record the examinee's responses verbatim
- For each trial, score 1 point if the examinee gives a correct response.
- For each trial, score 0 points if the examinee gives an incorrect response, says that he or she does not know the answer, or does not respond within 30 seconds.
- The item score is the sum of the trial scores for that item.
- The Digit Span total raw score is obtained by summing the Forward, Backward, and Sequencing item scores.
- Maximum Digit Span Total Raw Score: 48 points

Process Scores

- The Digit Span Forward total raw score is obtained by summing the Forward item scores.
  - Maximum Digit Span Forward Total Raw Score: 16 points
- The Digit Span Backward total raw score is obtained by summing the Backward item scores. Do not include the sample item in the score.
  - Maximum Digit Span Backward Total Raw Score: 16 points
- The Digit Span Sequencing total raw score is obtained by summing the Sequencing item scores. Do not include the sample item in the score.
  - Maximum Digit Span Sequencing Total Raw Score: 16 points
- The Longest Digit Span Forward score is the number of digits recalled on the last Forward trial scored 1 point. For example, if an examinee recalls 7 digits forward once and misses both trials on an 8-digit span, the LDSF is 7.
  - Maximum Longest Digit Span Forward Total Raw Score: 9 points
- The Longest Digit Span Backward score is the number of digits recalled on the last Backward trial scored 1 point. For example, if an examinee recalls 6

digits backward once and misses both trials on an 7-digit span, the LDSB is 6.

- o Maximum Longest Digit Span Backward Total Raw Score: 8 points
- The Longest Digit Span Sequencing score is the number of digits recalled on the last Sequencing trial scored 1 point. For example, if an examinee recalls 5 digits in a sequence once and misses both trials on an 6-digit span, the LDSS is 5.
  - o Maximum Longest Digit Span Forward Total Raw Score: 9 points

Item Administration: **Forward (Items 1-8)**

To introduce the task, say, **Now I'm going to say some numbers. Listen carefully, I can only say them one time. When I am through, I want you to say them back to me in the same order. Just say what I say.** Proceed to Trial 1 of Item 1.

Administer Trial 1 and Trial 2 of each item. Proceed to the next item if the discontinue criterion has not been met.

Remember to administer Backward and Sequencing regardless of the examinee's performance on Forward.

3. Digit Span

Start
Ages 16–90:
Forward: Item 1
Backward: Sample Item, then Item 1
Sequencing: Sample Item, then Item 1

Discontinue
Forward: After scores of **0** on *both trials* of an item
Backward: After scores of **0** on *both trials* of an item
Sequencing: After scores of **0** on *both trials* of an item

Score
Score **0** or **1** point for each trial.
DSF, DSB, and DSS
Total raw score for Forward, Backward, and Sequencing, respectiv...
LDSF, LDSB, and LDSS
Number of digits recalled on last trial scored 1 point on Forward, Backward, and Sequencing, respectively

Forward

Item	Trial	Response	Trial Score	Item Score
16–90 1.	9 – 7		0 1	0 1
	6 – 3		0 1	
2.	5 – 8 – 2		0 1	0 1
	6 – 9 – 4		0 1	
3.	7 – 2 – 8 – 6		0 1	0 1
	6 – 4 – 3 – 9		0 1	
4.	4 – 2 – 7 – 3 – 1		0 1	0 1
	7 – 5 – 8 – 3 – 6		0 1	
5.	3 – 9 – 2 – 4 – 8 – 7		0 1	0 1
	6 – 1 – 9 – 4 – 7 – 3		0 1	
6.	4 – 1 – 7 – 9 – 3 – 8 – 6		0 1	0 1
	6 – 9 – 1 – 7 – 4 – 2 – 8		0 1	
7.	3 – 8 – 2 – 9 – 6 – 1 – 7 – 4		0 1	0 1
	5 – 8 – 1 – 3 – 2 – 6 – 4 – 7		0 1	
8.	2 – 7 – 5 – 8 – 6 – 3 – 1 – 9 – 4		0 1	0 1
	7 – 1 – 3 – 9 – 4 – 2 – 5 – 6 – 8		0 1	

LDSF
(Max = 9)

Digit Span Forward (DSF)
Total Raw Score
(Maximum = 16)

Item Administration: **Backward**

Sample Item:

Trial 1:

Say, **Now I am going to say some more numbers, but this time when I stop, I want you to say the numbers backward. If I say 7-1, what would you say?**

Correct response [1-7]: Say, **That's right.** Proceed to Trial 2.

Incorrect response: Say, **That's not quite right. I said 7-1, so to say them backward, you should say 1-7.** Proceed to Trial 2.

Trial 2:

Say, **Let's try another one. Remember to sat them backwards. 3-4.**

Correct response [4-3]: Say, **That's right. Let's try some more.** Proceed to Trial 1 of Item 1.

Incorrect response: Say, **That's not quite right. I said 3-4, so to say them backward, you should say 4-3.** Proceed to Trial 1 of Item 1.

Items 1-8:

Administer Trial 1 and Trial 2 of each item. Proceed to the next item if the discontinue criterion has not been met.

Remember to administer Sequencing regardless of the examinee's performance on Forward and Backward.

Backward

Item	Trial	Correct Response	Response	Trial Score	Item Score
16–90 S.	7 – 1 3 – 4	1 – 7 4 – 3			
16–90 1.	3 – 1 2 – 4	1 – 3 4 – 2		0 1 0 1	0 1 2
2.	4 – 6 5 – 7	6 – 4 7 – 5		0 1 0 1	0 1 2
3.	6 – 2 – 9 4 – 7 – 5	9 – 2 – 6 5 – 7 – 4		0 1 0 1	0 1 2
4.	8 – 2 – 7 – 9 4 – 9 – 6 – 8	9 – 7 – 2 – 8 8 – 6 – 9 – 4		0 1 0 1	0 1 2
5.	6 – 5 – 8 – 4 – 3 1 – 5 – 4 – 8 – 6	3 – 4 – 8 – 5 – 6 6 – 8 – 4 – 5 – 1		0 1 0 1	0 1 2
6.	5 – 3 – 7 – 4 – 1 – 8 7 – 2 – 4 – 8 – 5 – 6	8 – 1 – 4 – 7 – 3 – 5 6 – 5 – 8 – 4 – 2 – 7		0 1 0 1	0 1 2
7.	8 – 1 – 4 – 9 – 3 – 6 – 2 4 – 7 – 3 – 9 – 6 – 2 – 8	2 – 6 – 3 – 9 – 4 – 1 – 8 8 – 2 – 6 – 9 – 3 – 7 – 4		0 1 0 1	0 1 2
8.	9 – 4 – 3 – 7 – 6 – 2 – 1 – 8 7 – 2 – 8 – 1 – 5 – 6 – 4 – 3	8 – 1 – 2 – 6 – 7 – 3 – 4 – 9 3 – 4 – 6 – 5 – 1 – 8 – 2 – 7		0 1 0 1	0 1 2

LDSB
(Max = 8)

Digit Span Backward (DSB)
Total Raw Score
(Maximum = 16)

continue
WAIS–IV Record Form

Item Administration: **Sequencing**

See page 6 on the WAIS Record Form for Item Trials.

Sample Item: Trial 1

To introduce the task, say, **Now I am going to say some more numbers. After I say them, I want you to tell me the numbers in order, starting with the lowest number. If I say 2-3-1, what would you say?**

Correct response [1-2-3]: Say, **That's right. Procced to Trial 2**.

Incorrect response: Say, **That's not quite right. I said 2-3-1, so to say them in order from lowest to highest, you should say 1-2-3**. Procced to Trial 2.

Trial 2

Say, **Let's try another one. 5-2-2.**

Correct response [2-2-5]: Say, **That's right. Let's try some more.** Procced to Trial 1 of Item 1.

Incorrect response: Say, **That's not quite right. I said 5-2-2, so to say them in order from lowest to highest, you should say 2-2-5. Let's try some more.** Procced to Trial 1 of Item 1.

Items 1-8:

Administer Trial 1 and Trial 2 of each item. Proceed to the next item if the discontinue criterion has not been met.

3. Digit Span (continued)
Sequencing

Discontinue after scores of 0 on *both trials* of an item.

Item	Trial	Correct Response	Response	Trial Score	Item Score
16–90 S.	2 – 3 – 1	1 – 2 – 3			
	5 – 2 – 2	2 – 2 – 5			
16–90 1.	1 – 2	1 – 2		0 1	0 1 2
	4 – 2	2 – 4		0 1	
2.	3 – 1 – 6	1 – 3 – 6		0 1	0 1 2
	0 – 9 – 4	0 – 4 – 9		0 1	
3.	8 – 7 – 9 – 2	2 – 7 – 8 – 9		0 1	0 1 2
	4 – 8 – 7 – 1	1 – 4 – 7 – 8		0 1	
4.	2 – 6 – 9 – 1 – 7	1 – 2 – 6 – 7 – 9		0 1	0 1 2
	3 – 8 – 3 – 5 – 8	3 – 3 – 5 – 8 – 8		0 1	
5.	2 – 1 – 7 – 4 – 3 – 6	1 – 2 – 3 – 4 – 6 – 7		0 1	0 1 2
	6 – 2 – 5 – 2 – 3 – 4	2 – 2 – 3 – 4 – 5 – 6		0 1	
6.	7 – 5 – 7 – 6 – 8 – 6 – 2	2 – 5 – 6 – 6 – 7 – 7 – 8		0 1	0 1 2
	4 – 8 – 2 – 5 – 4 – 3 – 5	2 – 3 – 4 – 4 – 5 – 5 – 8		0 1	
7.	5 – 8 – 7 – 2 – 7 – 5 – 4 – 5	2 – 4 – 5 – 5 – 5 – 7 – 7 – 8		0 1	0 1 2
	9 – 4 – 9 – 7 – 3 – 0 – 8 – 4	0 – 3 – 4 – 4 – 7 – 8 – 9 – 9		0 1	
8.	5 – 0 – 1 – 1 – 3 – 2 – 1 – 0 – 5	0 – 0 – 1 – 1 – 1 – 2 – 3 – 5 – 5		0 1	0 1 2
	2 – 7 – 1 – 4 – 8 – 4 – 2 – 9 – 6	1 – 2 – 2 – 4 – 4 – 6 – 7 – 8 – 9		0 1	

LDSS
(Max = 9)

Digit Span Sequencing (DSS)
Total Raw Score
(Maximum = 16)

Digit Span Total Raw Score
(Maximum = 48)

Arithmetic (Page 9 of Record Form)

- Materials
  - Administration and Scoring Manual
  - Record Form
  - Stimulus Book 1
  - Stopwatch
- Start
  - Start on Sample Item, then Item 6
- Reverse
  - If the examinee does not obtain a perfect score on either item 6 or item 7, administer the preceding items in reverse order until the examinee obtains a perfect score on two consecutive items.
- Discontinue after 3 consecutive scores of 0.
- Timing
  - The time limit for each item is 30 seconds.
  - Accurate timing of the items is essential. For items 1-5, begin timing each item after presenting the picture stimulus and saying the last word of instruction. For items 6-22, begin timing each item after saying the last word of instruction.
  - Stop timing when the examinee responds or 30 seconds have elapsed.
- General Directions
  - Items 1-5 are presented with a corresponding picture in the Stimulus Book. Read each item to the examinee as you point to the picture in the Stimulus Book. Items 6-22 are verbal items that are read verbatim to the examinee. Remove the Stimulus Book from the examinee's view when administering verbal items.
  - The examinee may not use a pencil or paper for any item, but do not discourage the examinee from writing on the table with a finger.
  - Each item may be repeated one time only. This repition is provided at the examinee's request. However, do not stop timing during repitition. Timing always begins after the last word of an item is spoken and continues until the examinee repsonds or the time expires. If the examinee asks for a second repetition, say, **I cannot repeat the item again.**
  - If the examinee provides multiple responses to an item or self-corrects after his or her initial response, score only the intended response. If it is not clear which one is the intended response, say **You said [insert**

examinee's response] and you said [insert examinee's response]. Which one did you mean? Score the intended response.

- o The sample item is designed to introduce the task, and items 1-2 are teaching items. Corrective feedback is provided if the examinee responds incorrectly or does not respond within the time limit. Provide no further assistance on this subtest.

- Score
  - o Record the completion time in seconds for each item. Items completed after the time limit are scored 0 points.
  - o Record the examinee's responses verbatim
  - o Correct responses are listed on the Record Form and in this manual.
  - o Count a response as correct if it is numerically correct, even if the examinee does not give the units. On items where time is the unit, alternate numerical responses are acceptable only if they are accompanied by the correct unit (e.g., 1 hour = 60 minutes).
  - o Score 1 point if the examinee gives a correct response within the time limit.
  - o Score 0 points if the examinee gives an incorrect response, says that he or she does not know the answer, or does not respond within the time limit.
  - o Maximum Arithmetic Total Raw Score: 22 points.

Item Administration

Sample Item

To introduce the subtest, say, **Now I am going to read you some problems. Listen carefully, you can only ask me to read each problem one more time.**

Lou has six baseballs. He loses three. How many baseballs does he have left?

- Correct response [3]: Say, **That's right. Let's try some more. Remember, you can ask me to read each problem one more time.** Proceed to the appropriate start point.
- Incorrect response [or no response]: Say, **That's not quite right. To solve this problem, you start with six baseballs and take away three baseballs. This leaves three baseballs. Let's try some more. Remember, you can ask me to read each problem one more time.** Proceed to the appropriate start point.

Item 1

Turn to Item 1 in the Stimulus Book. Point to the page and say, **Count these flowers with your finger. Count them out loud so I can hear you.** Begin timing and allow 30 seconds.

Correct response [correctly counts from 1 to 3]: Proceed to the next appropriate item if the discontinue criterion has not been met.

Incorrect response: Say, **There are three flowers.** Moving your finger from the examinee's left to right, point to each of the three flowers (about one per second) as you count aloud. Proceed to the next appropriate item if the discontinue criterion has not been met.

Item 2

Turn to Item 2 in the Stimulus Book. Point to the page, and say, **Count these apples with your finger. Count them out loud so I can hear you.** Begin timing and alloq 30 seconds.

Correct response [correctly counts from 1 to 10]: Proceed to the next appropriate item if the discontinue criterion has not been met.

Incorrect response: Say, **There are ten apples.** Moving your finger from the left to the right, point to each of the ten apples (about 1 per second) as you count aloud. Proceed to the next appropriate item if the discontinue criterion has not been met.

Item 3

Turn to Item 3 in the Stimulus Book. Point to the page and say, **How many bats** (point to the group of bats) **and balls** (point to the group of balls) are there all together? Begin timing and allow 30 seconds.

Correct response [6]: Proceed to the next appropriate item.

Incorrect response: Proceed to the next appropriate item if the discontinue criterion has not been met.

Item 4

Turn to Item 4 in the Stimulus Book. Point to the page and say, **How many birds** (point to group of birds) **and cats** (point to group of cats) **are there all together?**

Correct response [9]: Proceed to the next appropriate item.

Incorrect response: Proceed to the next appropriate item if the discontinue criterion has not been met.

Item 5

Turn to Item 5 in the Stimulus Book. Point to the page and say, **How many leashes** (point to group of leashes) **will be left if each dog** (point to group of dogs) **wears one?** Begin timing and allow 30 seconds.

Correct response [2]: Proceed to the next appropriate item.

Incorrect response: Proceed to the next appropriate item if the discontinue criterion has not been met.

Item 6 **Start Here**

Say, **Lee has four blankets. He buys four more. How many blankets does he have all together?** Begin timing and allow 30 seconds.

Correct response [8]: Proceed to the next appropriate item.

Incorrect response: If the examinee started with Item 1, proceed to the next item if the discontinue criterion has not been met. If the examinee started with Item 6, administer the preceding items in reverse order until the examinee has obtained perfect scores on two consecutive items.

Item 7

Say, **Scott has 9 pens. He gives 4 to Jean. How many pens does Scott have left?** Begin timing and allow 30 seconds.

 Correct response [5]: Proceed to the next appropriate item.

Incorrect response: If the examinee started with Item 1, proceed to the next item if the discontinue criterion has not been met. If the examinee started with Item 6, proceed to the next appropriate item if the discontinue criterion has not been met.

Items 8-22

Read each item verbatim and begin timing. The time limit for each item is 30 seconds. Each item may be repeated one time only.

Proceed to the next item if the discontinue criterion has not been met.

8. Bill has 4 children and 20 toys. If each child gets an equal number of toys, how many should each child get?

9. Sue is 35 years old. Rob is 18 years old. How many years older is Sue than Rob?

10. John has 28 books. He sells half of them to a used bookstore and gives 9 more away. How many books does he have left?

11. Juan has 51 tickets. He gives 6 people 8 tickets each. How many tickets does he have left?

12. There are 25 pieces of chewing gum in each pack. How many pieces are in 8 packs?

13. George gives 8 people 4 cards each. He has 6 cards left for tomorrow. How many cards did he have all together?

14. Ying runs 22 minutes each day on Monday through Friday. She runs 30 minutes on Saturday. How many minutes did she run all together?

15. Beth stands in line behind 160 people. She lets 20 more people in line ahead of her. Six people get to the front of the line each minute. How many minutes until Beth gets to the front of the line?

16. You can back 2 cakes in 31 minutes. How long does it take to bake 12 cakes?

17. Doug sells two-thirds the number of maps that Kim sold. Doug sold 400 maps. How many did Kim sell?

18. Frank worked 188 hours in 4 weeks. If he worked an equal number of hours each week, how many hours did he work each week?

19. Chris has twice as many pies as Ron. Chris has 99 pies. How many pies does Ron have?

20. Pam usually rides her horse 60 laps around a track. She rides 15 percent fewer laps today. How many laps does she ride today?

21. If 8 machines can finish a job in 6 days, how many machines are needed to finish the job in half of a day?

22. A post office sorts 20,000 pieces of mail in October. In November, the pieces of mail sorted increase by 10 percent. In December, the pieces of mail sorted increase by another 5 percent. How many pieces of mail are sorted in December after both increases?

Letter number sequencing

- Materials
  - Administration and Scoring Manual
  - Record Form
- Start
  - Ages 16-69: Demonstration Item A, Sample Item A, then Item 1
  - Ages 70-90: Do not administer
- Discontinue
  - Discontinue after scores of 0 on all three trials of an item.

General Directions

- Demonstration Item A and Sample Item A have one number and one letter in each trial and are used to teach the task for Items 1-2. For these items, the examinee must recall the number first, then the letter.
- Demonstration Item B and Sample Item B have three numbers and letters in each trial and are used to teach the task for Items 3-10. For these items, the examinee is instructed to recall the numbers first, in ascending order, then the letters in alphabetical order. The examinee receives credit if all of the numbers and letters are recalled in the correct sequence, even if the letters are recalled before the numbers.
- Each test items is composed of three trials. Administer all three trials of each item.
- Read each trial verbatim at the rate of one number or letter per second, dropping your voice slightly on the last number of letter in the sequence. Pause to allow the examinee to respond.
- The number zero and the letter O are not included in any trial to avoid possible confusion. The letters I and L are not included in any trial to avoid possible confusion with the number 1.
- If the examinee begins to respond before you have finished reading the trial, present the remainder of the trial and allow the examinee to respond. Award appropriate credit for the response and say, **Remember to wait until I'm finished before you start.**
- Do not repeat any trial of an item. If the examinee asks you to repeat a trial, say, **I cannot repeat the sequence. Just take your best guess.**
- If an examinee provides multiple responses to a trial or self-corrects after his or her intitial response, score only the intended response. If it is not clear which one is the intended response, say, **You said** [insert examinee's

response] **and you said** [insert examinee's response]. **Which one did you mean?** Score the intended response.

- Items 1-2 are teaching items. Corrective feedback is provided if the examinee responds incorrectly or does not respond within approximately 30 seconds. Provide no further assistance on this subtest.

Score

- Record examinee's responses verbatim.
- Correct responses are listed on the REcord Form and in this manual. For sample Item A and Items 1-2, there is only one correct response for each trial. For Items 3-10, there are two correct responses for each trial. The examinee needs to provide only one of the correct responses to receive credit.
- For each trial of Items 1-2, score 1 point if the examinee gives the correct response.
- For each trial of Items 3-10, score 1 point if the examinee gives either one of the correct responses. The examinee receives credit even if the letters are recalled before the numbers.
- For each trial of Items 1-10, score 0 points if the examinee gives an incorrect response, says that he or she does not know the answer, or does not respond withing approximately 30 seconds.
- The item score is the sum of the trial scores for that item.
- The total raw score is obtained by summing the item scores.
  - Maximum LNS Total Raw Score: 30 points.

Item Administration

Demonstration Item A

To introduce the task, say, **I'm going to say some numbers and letters. After I say them, I want you to say the number first, then say the letter.**

For example, if I say C-1, you would say 1-C. The number goes first, then the letter. Proceed to Sample Item A.

Sample Item A

Let's practice A-4.

Correct response [4-A]: Say, **That's right**. Proceed to Trial 1 of Item 1.

Incorrect response: Say, **That's not quite right. I said A-4, so you should say 4-A. The number goes first, then the letter.** Proceed to Trial 1 of Item 1.

Items 1-2

Administer all three trials of each item. Proceed to Demonstration Item B if the discontinue criterion has not been met after administration of Item 2.

Item	Trial	Correct Response
1	2-B	2-B
	D-1	1-D
	4-C	4-C

Item	Trial	Correct Response
2	E-5	5-E
	3-A	3-A
	C-1	1-C

If the examinee does not say the number first, say, **Remember to say the number first, then say the letter.**

Demonstration Item B

Say, **Now let's try some with more numbers and letters. I want you to tell me the numbers first, in order, starting with the lowest number. Then tell me the letters in alphabetical order.**

For example, if I say 2-B-1, then you would say 1-2-B. You say the numbers first, in order, starting with the lowest number. Then say the letters in alphabetical order. Proceed to Trial 1 of Sample Item B.

Sample Item B

Trial 1

Let's practice. D-5-A.

Correct response [5-A-D]: Say, That's right. Proceed to Trial 2.

Incorrect response: Say, **That's not quite right. I said D-5-A. You should say 5-A-D. You say the numbers first, in order, starting with the lowest number. Then say the letters in alphabetical order.** Proceed to Trial 2.

Trial 2

Say Let's try another one. 2-B-4

Correct response [2-4-B]: Say, That's right. Proceed to Trial 1 of Item 3.

Incorrect response: Say, **That's not quite right. I said 2-B-4. You should say 2-4-B. You say the numbers first, in order, starting with the lowest number. Then say the letters in alphabetical order.** Proceed to Trial 1 of Item 3.

Item 3

Say, **Let's try some more. Remember to say the numbers first, in order, starting with the lowest number. Then say the letters in alphabetical order.**

Administer all three trials. Proceed to the next item if the discontinue criterion has not been met.

Proceed with all trials shown below:

					Score		Item
DB.	2 – B – 1	1 – 2 – B					
SB.	D – 5 – A	5 – A – D					
	2 – B – 4	2 – 4 – B					
	5 – C – A	5 – A – C	A – C – 5		0	1	0 1
3.	F – E – 1	1 – E – F	E – F – 1		0	1	2 3
	3 – 2 – A	2 – 3 – A	A – 2 – 3		0	1	
	1 – G – 7	1 – 7 – G	G – 1 – 7		0	1	0 1
4.	H – 9 – 4	4 – 9 – H	H – 4 – 9		0	1	2 3
	3 – Q – 7	3 – 7 – Q	Q – 3 – 7		0	1	
	Z – 8 – N	8 – N – Z	N – Z – 8		0	1	0 1
5.	M – 6 – U	6 – M – U	M – U – 6		0	1	2 3
	P – 2 – N	2 – N – P	N – P – 2		0	1	
	V – 1 – J – 5	1 – 5 – J – V	J – V – 1 – 5		0	1	0 1
6.	7 – X – 4 – G	4 – 7 – G – X	G – X – 4 – 7		0	1	2 3
	S – 9 – T – 6	6 – 9 – S – T	S – T – 6 – 9		0	1	
	8 – E – 6 – F – 1	1 – 6 – 8 – E – F	E – F – 1 – 6 – 8		0	1	0 1
7.	K – 4 – C – 2 – S	2 – 4 – C – K – S	C – K – S – 2 – 4		0	1	2 3
	5 – Q – 3 – H – 6	3 – 5 – 6 – H – Q	H – Q – 3 – 5 – 6		0	1	
	M – 4 – P – 7 – R – 2	2 – 4 – 7 – M – P – R	M – P – R – 2 – 4 – 7		0	1	0 1
8.	6 – N – 9 – J – 2 – S	2 – 6 – 9 – J – N – S	J – N – S – 2 – 6 – 9		0	1	2 3
	U – 6 – H – 5 – F – 3	3 – 5 – 6 – F – H – U	F – H – U – 3 – 5 – 6		0	1	
	R – 7 – V – 4 – Y – 8 – F	4 – 7 – 8 – F – R – V – Y	F – R – V – Y – 4 – 7 – 8		0	1	0 1
9.	9 – X – 2 – J – 3 – N – 7	2 – 3 – 7 – 9 – J – N – X	J – N – X – 2 – 3 – 7 – 9		0	1	2 3
	M – 1 – Q – 8 – R – 4 – D	1 – 4 – 8 – D – M – Q – R	D – M – Q – R – 1 – 4 – 8		0	1	
	6 – P – 7 – S – 2 – N – 9 – A	2 – 6 – 7 – 9 – A – N – P – S	A – N – P – S – 2 – 6 – 7 – 9		0	1	0 1
10.	U – 1 – R – 9 – X – 4 – K – 3	1 – 3 – 4 – 9 – K – R – U – X	K – R – U – X – 1 – 3 – 4 – 9		0	1	2 3
	7 – M – 2 – T – 6 – F – 9 – A	2 – 6 – 7 – 9 – A – F – M – T	A – F – M – T – 2 – 6 – 7 – 9		0	1	

LLNS (Max = 8)

Letter–Number Sequencing
Total Raw Score
(Maximum = 30) ___

For the WAIS, each participant will be scored on their own record form so each will have to be scanned and scored

Concrete and abstract picture description task

* Make sure "Gesture_ConcreteAbstract" powerpoint is open and ready to go. *

Task1: Abstract vs. concrete images

- *Aim:* To examine how individuals with aphasia and aged-match controls use gesture to describe **abstract vs concrete images.**

After sharing your screen, instruct participants to describe each image they see, first all 25 concrete images, then all 25 abstract images.

Task2: Address description task

- *Aim:* To examine how individuals with aphasia and aged-match controls use gesture to describe **how to get from one point to another:** Home, grocery store, family/friend home to their own home

1. "Can you describe the path you take to get from home to your grocery store"

2. "Tell me how to get from a friend/relative's home back to your home"

3. "Can you describe the path you took to get from your home to your work".

4. "Can you describe the path you take to get from your home to your local gas station"

Discourse Battery

Section 1: Free Speech Samples

Start with a preliminary unrecorded conversation for social exchanges, signing consent forms, explaining about recording the session, answering any questions, and so forth.

BEGIN RECORDING

If your institution requires it, record the following preamble about informed consent, then lead in to the first recorded protocol item (Stroke Story). If not, go straight to the Stroke Story.

Investigator:

"This participant has signed an informed consent form. These data can be used for _____ (specify: research, teaching, or any purpose). These data are not to be used for _____ (specify any restrictions)."

B. ILLNESS STORY AND COPING

Question 1: **"In this research project, I ask people who've had strokes to tell me what they remember about when they had their stroke. Since you haven't had a stroke, I wonder if you could tell me what you remember about any illness or injury you've had."**
If no response in 10 seconds, prompt:

"Tell me about any time you've been sick or hurt."
At a natural juncture, add:

Question 2: **"Tell me about your recovery from that illness (or injury). What kinds of things did you do to get better?"**
If no response in 10 seconds, prompt:

"Tell me about any things you did to get well."
Question 3: **"Have you had any experience with people who have a difficult time communicating?"**
If yes, **"Please tell me what the problems were and what you did about it."**
If no, **"Have you ever had trouble communicating with someone, like talking to people from another country?"**
If no response in 10 seconds, prompt:

"Tell me about a time when you had trouble communicating with someone or someone had trouble communicating with you."

B. IMPORTANT EVENT

"Thinking back, can you tell me a story about something important that happened to you in your life? It could be happy or sad or from any time --from when you were a kid or more recently."

If no response in approximately 10 seconds, prompt:

"For instance, you could tell me about a trip you took or something about your family or your work --anything."

If no response, go on to Picture Descriptions.

SECTION II: PICTURE DESCRIPTIONS

A. BROKEN WINDOW

"Now I'm going to show you these pictures."

Present picture series.

"Take a little time to look at these pictures. They tell a story. Take a look at all of them, and then I'll ask you to tell me the story with a beginning, a middle, and an end. You can look at the pictures as you tell the story"

If no response in 10 seconds, give second prompt:

"Take a look at this picture (point to first picture)and tell me what you think is happening."

If needed, point to each picture sequentially, giving the prompt:

"And what happens here?"

For each panel, if no response, provide the prompt:

"Can you tell me anything about this picture?"

If no response at all, prompt:

"Is the boy kicking the ball through the window?"

4B. REFUSED UMBRELLA

Present picture series.

"Here are some more pictures that tell a story. Take a look at all of them, and then I'll ask you to tell me the story with a beginning, a middle, and an end. Again, you can look at the pictures as you tell the story."

If no response in 10 seconds, give second prompt:

"Look at this picture (point to first panel) and tell me what you think is happening."

If needed, point to each panel sequentially, giving the prompt:

"And what happens here?"

For each panel, if no response, provide the prompt:

"Can you tell me anything about this picture?"

If no response at all, prompt:

C. CAT RESCUE

Present picture.

"Here is another picture. Look at everything that's happening and then tell me a story about what you see. Tell me the story with a beginning, a middle, and an end."

If no response in 10 seconds, give second prompt:

"Take a look (point to picture)and tell me any part of the story."

If fewer than 2 utterances, give third prompt:

"Anything else you can tell me about the story?"

If no response at all, prompt:

"Is the cat stuck in the tree?"

SECTION lII: STORY NARRATIVE

CINDERELLA

Open link for Cinderella story:
https://aphasia.talkbank.org/protocol/english/participant/sequences/Cinderella/index.html

"I'm going to ask you to tell a story. Have you ever heard the story of Cinderella?"

(Make note of answer for demographic data. If answer is no, ask participant to tell a fairy tale s/he knows.)

"Do you remember much about it? These pictures might remind you of how it goes. Take a look at the pictures, and then I'll put the book away and ask you to tell me the story in your own words."

Allow participant to look through book (assist with page turning if needed), and then prompt:

"Now tell me as much of the story of Cinderella as you can. You can use any details you know about the story, as well as the pictures you just looked at."

If participant gives a response of fewer than three utterances, or seems to falter, allow 10 seconds, then prompt:

"What happened next?"

or

"Go on."

Continue until participant concludes story or has clearly finished.

If no response, prompt:

"Did Cinderella go to the ball and meet the prince?"

SECTION IV: PROCEDURAL DISCOURSEPEANUT BUTTER AND JELLY SANDWICH

Do not use a picture stimulus for this task.

"Let's move on to something a little different. Tell me how you would make a peanut butter and jelly sandwich."

If no response in 10 seconds, give second prompt:

"If you were feeling hungry for a peanut butter and jelly sandwich, how would you make it?"

If no response, prompt:

"Do you like eating peanut butter and jelly sandwiches?"

PROCEDURAL 2- LAUNDRY

Do not use a picture stimulus for this task.

"Now explain to me how you do your laundry."

If no response in 10 seconds, give second prompt:

"If you had dirty clothes, how would you do your laundry?"

If no response, prompt:

"Have you ever done laundry before?"

PROCEDURAL 4 (RETEST ONLY)- GROWING A FLOWER

Do not use a picture for this task

"Now explain how you would grow a flower in a garden or pot."

If no response in 10 seconds, prompt:

"If you had to plant a flower, how would you make sure it grows?"

<mark>**SEE "POST ASSESSMENT PROCEDURES" LOCATED AT THE BOTTOM OF THIS DOCUMENT FOR INFORMATION ON SAVING DATA AND PAYING SUBJECTS**</mark>

Post Assessment Procedures (Aphasic and Control Group)

Saving Video:

Follow these steps to navigate to the Subject's folder:

[Box Health] Neural Research Lab--> APHASIABANK GESTURE & DISCOURSE STUDY--> AdminDocs--> Subject Data

Find the subject's folder and upload the full video.

1. Scan WAIS, MOCA, WAB and upload to subject's folder.

Subject payment:

1. Go to One.iu and choose the application "BuyIU"
2. Once you get to BuyIU you will need to find and select the icon labeled "ngc" under the IU Punchout Shopping tab:
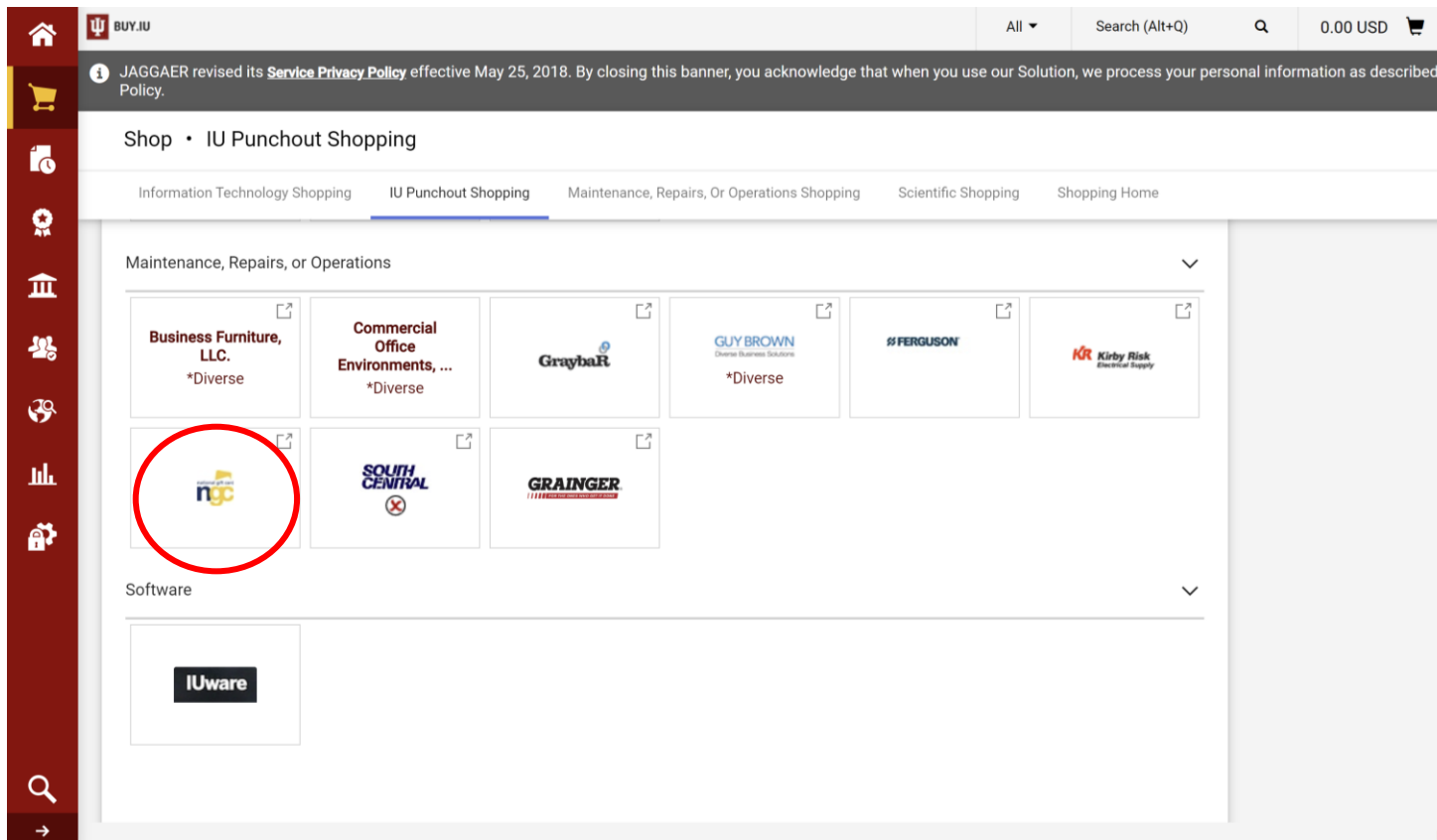
3. Now select Electronic Gift Cards located on the left side tab menu
4. Enter the number of cards you will need under the dollar correct amount
   a. For control group: $150
   b. For aphasia group: $250
5. After entering the quantity, hit the ENTER key

6. Under the checkout box, enter your first name, last name, and email address
7. Check the box at the bottom of the page and select Finish Cart

Checkout

Complete your request by clicking on the "Finish Cart" button below.

STOP IMPORTANT *Please Read* Before You Continue

eCode Delivery Information

- **eGift orders should NOT go directly to your recipient**
- Only enter the name of the purchaser/authorized distributor
- eGifts are not emailed directly to you. For instructions on downloading your codes from the EMS portal **CLICK HERE**
- Use business email address only. Orders showing Gmail, Hotmail, Yahoo, etc. will be **cancelled/refunded.**
- First and Last name MUST reflect the owner of the email address.

First Name:

Last Name:

Email Address:

☐ - By clicking, you are affirming that you are purchasing gift cards for research participants only and that you have read, understand, and agree to the Indiana University policies relating to the use of University funds, hospitality, and gifts. **FIN-ACC-I-35 - Fraud, FIN-ACC-I-30 - Fiscal Misconduct**, and **FIN-ACC-I-50 - Allowable Hospitality Expenses.**

Finish Cart

Resources

Ideal Environment Checklist

Internet connection

- ❑ Ethernet connection (preferred) or reliable Wi-Fi. If possible, confirm the reliability of your Internet by determining bandwidth and speed Hardware
- ❑ Screen sharing device (i.e., computer, iPad) with an adequate display resolution (roughly 9 in. of screen) is required
- ❑ Built-in or external webcam/camera device
- ❑ Functioning audio system is required (i.e., microphone, speaker)
- ❑ Headphones for investigator and participant are recommended
- ❑ Recommended that device can stand on its own (i.e., not required to be handheld)

Environment and experiment setup

- ❑ Image (i.e., camera placement) of participant and investigator should include head and shoulders in the center of the screen
- ❑ If necessary, the camera angle should be adjusted to include participant gesticulation
- ❑ Lighting should be adequate for clear visibility (i.e., facial features, object manipulation)
- ❑ Make sure camera is able to see full upper body including any space where gesturing may occur.

To prevent potential distractions from the experimental environment:

- ❑ Close household windows to reduce background noise
- ❑ Notify other people that you are in a session
- ❑ Remove pets from the room (if possible)
- ❑ Turn phone and other devices to silent or off
- ❑ Close door(s) to room (if possible)
- ❑ Close all unnecessary programs and windows on computer

Teleassessment Guidelines (AphasiaBank)

via MacWhinney, B., Fromm, D., Forbes, M. & Holland, A. (2011). AphasiaBank: Methods for studying discourse. *Aphasiology, 25*,1286-1307.

General tips:

- Allow ample time for as full a response as each participant can provide using this protocol script.
- To facilitate transcription, the examiner's speech, including verbal encouragers, should be kept to a minimum. Use nonverbal encouragers (e.g., head nods, facial expressions, eye contact) instead of verbal encouragers (e.g., "I see", "mhm", "yeah") whenever possible.

Exceptional scenarios

- For those unable to respond to any of the prompts for the Stroke Story, skip the Important Event task and proceed to the first Picture Description (Broken Window).

- If the participant responds to the Broken Window picture description prompt, continue with the protocol, changing the order if that helps, and returning to the initial questions if appropriate.
- If the participant does not respond to the Broken Window picture, and you believe these tasks are too difficult, you can discontinue as you see fit.

Best protocol study:

https://pubmed.ncbi.nlm.nih.gov/34019776/

AphasiaBank Teletesting Protocol:

https://aphasia.talkbank.org/protocol/english/

Recruitment methods:

From Doub, Hittson & Stark 2021

Set up both appointments simultaneously

Include instructions for downloading Zoom in preliminary emails

Go through environment checklist together at the beginning of the session

Video Interview Protocol:

From Stark, Clough & Duff, 2021:

Make sure camera is positioned correctly so the following parameters are met:

For autobiographical info: Particpants can retell the same story as last week or tell a new story, make sure to include whatever comes to the top of their head or whatever is most readily available.

New tasks:

- Narrative 2:
  - From: Kurczek, J., Wechsler, E., Ahuja, S., Jensen, U., Cohen, N. J., Tranel, D., & Duff, M. (2015). Differential contributions of hippocampus and medial prefrontal cortex to self-projection and self-referential processing. Neuropsychologia, 73, 116–126.
    - Participants were given a neutral cue word and asked to (re)construct events across four time conditions: real past, imagined past, imagined present, and future. These event narratives were analyzed for the number of internal and external details to quantify the extent of episodic (re)experiencing.
    - For our study, we could provide a word and only ask participants to reconstruct an event across **one** time condition, maybe provide information about a personal life event?
    - Neutral cue words were selected from the Affective Norms for Emotional Words database
      - Specifically used: clock, bird, hotel, restaurant
- Procedural 2 and 3:
  - From: Ulatowska, H. K., Doyel, A. W., Stern, R. F., Haynes, S. M., & North, A. J. (1983). *Production of procedural discourse in aphasia. Brain and Language, 18(2), 315–341.*
    - Changing a light bulb in a ceiling fixture, making a favorite sandwich, making scrambled eggs, and instructing a person from another country on how to shop in an American supermarket.
    - Subjects to assume listener does not know how to do these tasks
    - Varying levels of difficulty of task
    - Several steps, not food related
    - Test and Retest: Sandwich and laundry
    - Test: Getting dressed in the morning (weekend in the summer)
    - Retest: How to grow a flower outside