SPAU328

Principles of Evaluation, Diagnosis, and Report Writing

[Book + lecture]

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Zero: Introduction [Overview] (before chapter one)

What's the difference between diagnosis and assessment?

- **Assessment** is all of the tools used in order to end up with an accurate diagnosis
- Example of standard assessment tools: interviews, case history, general assessment, speech sample, interpretation
    - → **Assessment** is the process of collecting the data (and not randomly) and it has to be valid and reliable.
        - → It is gathered/collected scientifically and reliably
        - → Has to be valid and reliable
        - → **Standard Assessment Procedures**:
            - Screening
            - Case history
            - Interview
            - Hearing screening
            - Oral-peripheral examination
            - Speech and language sample
            - Diagnosis
            - Share findings

➢ All of these have to be taken into consideration in order to reach an accurate diagnosis

- → **Diagnosis** is تشخيص
- → **Diagnosis** is an understanding of the problem
- → **Diagnosis** is the identification of the nature of an illness or other problem by examination of the symptoms

Assessment tools [for a meaningful assessment]:

- *It has to be thorough* [It has to have all of the information we need not just a part of it or a tiny piece of information that we need more information for]
    - → Example: the patient has tinnitus → and so we need more information about this point
- *It has to have more than one modality*
    - → There are some people where one assessment works for them but another assessment doesn't.
    - → Some disorders have extensive histories; others do not.
    - → Clients have different primary communicative problems. Some exhibit problems of articulation, others of voice, still others of fluency, and so forth.
    - → Some cases involve extensive interviewing; others do not.
    - → Some cases require detailed written reports, whereas others do not.
    - → It's unfair to depend on only one thing. If depended on one thing only it will be unreliable and invalid
- *It has to be valid and reliable*
- *It has to be tailored to the client*

A good assessment [summary]:

- *A good assessment is thorough.*
- *A good assessment uses a variety of assessment modalities.*
- *A good assessment is valid.*
- *A good assessment is reliable.*
- *A good assessment is tailored to the individual client.*

Steps for completing an assessment:

1. *Obtain **historical information** about the client, the client's family or caregivers, and the nature of the disorder.*
2. ***Interview** the client, the client's family or caregivers, or both.*
3. ***Evaluate the structural and functional integrity** of the oral facial mechanism.*
4. ***Sample and evaluate** the client's speech and language use and abilities in the areas of articulation and speech, language, fluency, voice, and resonance. In the case of a dysphagia assessment, assess the client's chewing and swallowing abilities.*
5. ***Screen** the client's hearing or obtain evaluative information about hearing abilities.*
6. ***Evaluate assessment information** to determine impressions, diagnosis or conclusions, prognosis, and recommendations.*
7. ***Share clinical findings** through an interview with the client or caregiver, formal written records (such as a report), and informal verbal contacts (such as a telephone contact with a physician).*

Screening:

Usually when we see a patient, they are usually referred to us by a doctor or they were self-referred.

- There is something called **unofficial screening** → this happens when someone goes to the general doctor and this doctor does a quick screening (unofficial screening) and checks to see if they should refer them to someone else. The doctor doesn't refer everyone, only those who need it.
- **Screening** is a brief procedure and short in time.
- If they were referred to us, we technically begin assessment and have information *[from case history or the referral letter from the doctor himself with all of the information needed]* and thus we see which tests and what the next course of action is (the plan).
- If the person came **self-referred** then that means that the person did unofficial screening on themselves.
- In certain hospitals or schools, they do certain screenings that are basically saying that who needs more help or is an emergency.
  - → *Example: a person who broke his leg and a person who got fatally shot. Even if the one with the broken leg was there before, the one who got fatally shot will be treated first.*

Case History:

In order to obtain information:

- Case history form
- Interview

❖ Obtaining this information helps to understand the client and their communication disorder
❖ We gather information about:
  → *Family*
  → *Health*
  → *Occupation*
  → *Cultural + linguistic factors*

Case History:

- **Personal information (identification information)**
  - *Name, Birth date, ID number, Home address, Etc.*
  → **Contact information**
  - *Phone number, email, etc.*

❖ It is important that the first question should be **open ended** and the answer you receive you continue along with their answer.
  - *Example: How can I help you today?*
  - *What was the reason that brought you here today?*

❖ Even if the form is in front of you, you don't look at every single detail within it and you continue it along with the patient's answers.
❖ The rest of the questions after the first one must be **close ended** (only the first one is open ended)

- **Description** of the communication Disorder
- **Prior assessment** and treatment (if there was)
- **Family constellation** and communication
- **Prenatal, birth, and development** history
- **Medical** History
  → *Medication, premature, medical conditions, development, etc.*
- **Educational** history
- **Occupational** history

❖ This also helps one with their management plan.
❖ You attain data and also provide support for the patient [helps with the trust and building a good relationship between clinician and the patient].

Interview:

[The interview could be part of the case history]

Interview:

- **Face-to-face** meeting or exchange with the client, family, or both
- More information is added in order to clarify and expand the information on the standard case history form
- It is important to repeat what has been said (occasionally)

➢ Why is the interview important?
  → To **obtain** – data
  → To **provide** – support
  → To **establish** – trust, respect, etc.

➢ These interviews are:
  → Oriented
  → Slow paced
  → Rational
  → Attentively listened to
  → Confidential
  → Takes into consideration cultural and linguistic variables

Helps with trust, respect, etc.

Hearing Screening:

Hearing screening is a quick test to see how well you hear different sounds. You either pass or fail the screening. If they *pass*, they are *referred* to a specialist. There are different types and different situations.

  → *Example: in the hospitals for newborns. The doctors ask the family if it's okay if they did a few tests and they can accept or decline.*
  → When we do screening programs we should know what our next steps should be. For example, you found out they have hearing loss, you don't stop there, and you have to give them solutions or the next step.

- This test should be done with as little noise as possible
- **NORMAL**: Its **20** or **25** dB HL for **500**, **1000**, **2000**, and **4000** Hz
- **YOUNG CHILDREN**: Its **15** Db HL for **500**, **1000**, **2000**, **4000**, and **8000** Hz

❖ IF THE PERSON FAILED THE SCREENING IT DOES NOT MEAN THEY HAVE TO HAVE A PROBLEM
  → They just need a more thorough assessment

Different types of Hearing screening:

- **Automated ABR** (not regular ABR because that takes a lot of time)
- **Otoacoustic emissions** (OAE) – this is done for everyone when they are born.
  → There are certain cases where if there was a fail (even if it was just in one ear), then we do **Automated ABR** in order to make sure.

- ❖ All of these things help in order to see who needs a more thorough assessment.

Speech screening is when one takes a speech sample and then analyzes the child's **speech** *(how he/she pronounces sounds)* and **language** *(following directions, answering questions, processing information, naming vocabulary etc.)*, observing play and social interactions, as well as reading and writing abilities.

→ *Example: taking a 30 minute speech sample from a child and analyzing the text.*

- ❖ Afterwards one comes up with the diagnosis after analyzing the findings and sharing it with the family and the medical officials who have something to do with the case sample.

Oral-Peripheral Examination:

Oral-Peripheral Examination: examination of the structure and function of the articulatory organs [**Oral** and **facial** structure examination to evaluate the functional and structural integrity].

- ➢ They note the **structural abnormalities** that may need medical attention
- ➢ Very important for speech production

Speech Language Sample:

Speech and language sample is the **primary** means of **assessing** the client's speech and language production.

→ There is *videotape* or *Audiotape*
→ It's a *representative* sample – in a naturalistic context [it's taken in order to represent them and their speech/language]
  - o Could be taken in: *interactions, conversations*
  - o It could be:
    1. **structured** [*goal oriented*] → following rules or instructions to reach a particular goal
    2. **unstructured** → creative and improvised with no set goal and unlimited possibilities

o It gives information about **articulation skills**, **language skills**, or **both**.

Speech language sample (Child):

- Make sure the client isn't self-conscious
- The average is around **50 to 100 utterances**.
- Must observe carefully and take notice.
- The child can tell a story and one then records it.
- If the child can read, then we give them something (a story) to read and record them.
- This sample can be taken anywhere (it doesn't have to be in the clinic)
  - → House, school, clinic, daycare, etc.
  - → Make sure it's quiet and to avoid noisy stimulus materials (if done in clinic)
  - → Obtain a home sample is if the parents are willing to record.
- With adults, use pictures and objects only when necessary → converse about relevant topics.

- The longer it is, the more it can represent.
- Give the child pictures, stories, certain things that the child likes. We can tell the family in order to bring something with them what the child likes (toys or books, etc.) in order to motivate them.
- The age must be taken into consideration. We can't give the child or an adult something inappropriate for their age. (too advanced or too easy)
- Do not bombard the child with questions
- When there are unintelligible utterances → we should repeat what the client said.
- To increase the child's comfort level we allow the family to interact with them first.
- We should ask **open-ended** questions <u>way more</u> than **yes or no** questions.
- Clinician can calculate **MLU** thanks to this (especially for kids)
- We should take notes on the **pragmatic skill** of theirs.
    - → *Example: narrative, eye contact, turn-taking, topic maintenance, and initiation*

Obtaining Related Assessment Data:

When we gather the sample, we have to pay attention to:

- Language development
- Dialects
- Behavior
- How one opens up a topic with the child
- Socioeconomic status

1) The **socioeconomic status** of the family has a direct effect on development in general. It has an effect on level and vocabulary. The better the status, the better the level, the vocabulary, the reading, etc.

In Audiology, there are the **link sounds**:

- → a, o, e, m, s, sh
- → when we are placing a hearing aid, we have to make sure that these sounds are heard
- → If not, then we can tell at which frequencies we need to fix because each one of these sounds are on certain frequencies.

Medical information for adults:

- **The difference when it comes to an adult and a child** is that we can receive information from the adult and in details (depends on the person). *Ex: if they had a stroke, they will speak about it.* We can also hear their expectations and stuff that have to do along these terms.
- **[ADULTS] In medical settings**, we need information that has to do with:
    - → **Medica**l
        - o *Diagnosis*
        - o *Prognosis*
        - o *Medication*
        - o *Side effects*
    - → **Current and future medical treatment plans**

→ **Brain imaging and radiological data** *(Example: neurological disorder)*
→ **Audiological findings related to the communication disorders**
→ **Physical rehabilitation plans** (if there is any)

Chapter One: Foundations of Assessment (types of assessment)

Standardized and Non-standardized:

There are 2 main types of assessment:

- **Standardized** → a method of assessment built on the principle of consistency (or "standardly")
  - It's a **systematic test** (there is a system for it)
  - What the examiner says and does is *controlled* by a manual
  - There are *explicit* rules for the scoring of the test (also by manual)
  - There is a specific **stimuli** used
  - The measurement process will be *uniform* (the same) between the examiners
  - *More* restrictions compared to non-standardized, but it will be easier

- **Non-standardized** → one that does not rely on a standardized test, often because the person being evaluated does not fit the normative sample for the test.
  - **one that allows for an assessment of an individual's abilities or performances**, but doesn't allow for a fair comparison of one student to another
  - Not following the standardized test
  - It *could* be not valid (because in comparison to other things it doesn't have a system).
  - Gives the opportunity for the examiner to do whatever they wish (there is some bias) but it has to be able to go back to what they wanted to achieve.
  - **Questionnaires:** these questionnaires are **administered personally** or sent to clients, parents, teachers, etc.
  - **Questionnaires** may be more valid than formal tests [the **interviews** can stand alone or go along with the questionnaires]
  - Interviews are more personalized than questionnaires
    - → **Questionnaire** implies a form consisting of a series of written or printed multiple choice questions, to be marked by the informants.
    - → **Interview** is a formal conversation between the interviewer and respondent wherein the two participates in the question answer session.
- The use of **questionnaires** and **interviews** → **Quantitative data** and **Qualitative data** [verbal descriptions]

Other types of assessments:

[Can be standardized or non-standardized] → if followed the rules, it will be standardized. If not, then it will be non-standardized. And there are some tests already non-standardized.

There are 3 other types of assessment:

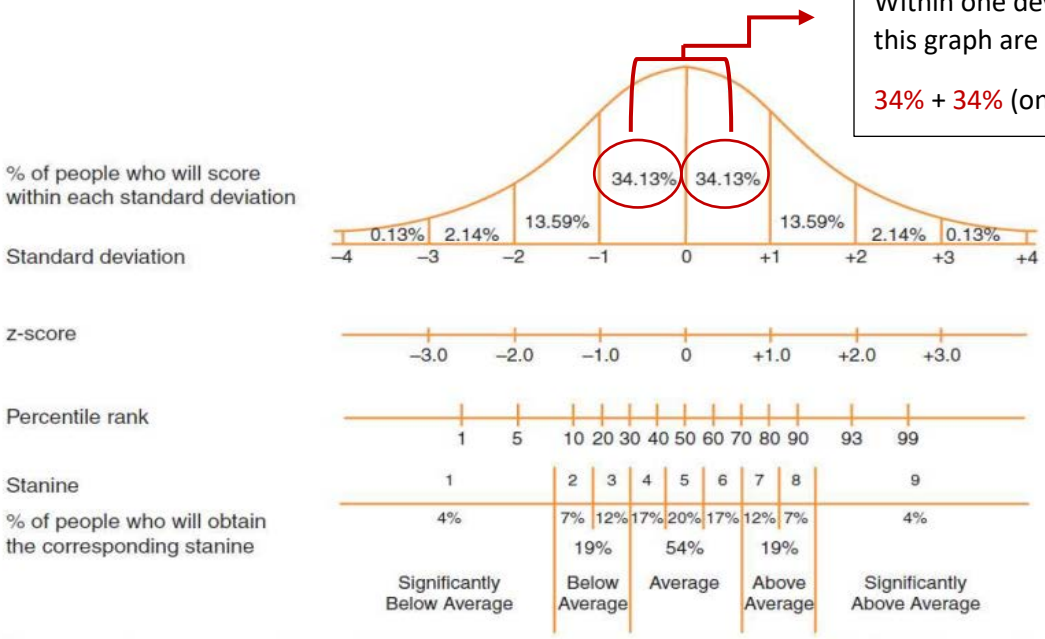
- Norm-referenced test
- Criterion-referenced test
- Authentic assessment
  - → Dynamic assessment

1. Norm-referenced test

- The Norm-referenced test is <u>always</u> standardized
- It allows a *comparison* of an individual's performance to the performance of a larger group [that group is called the **normative group**]
- It's a representation for a specific population you want it to represent
  - → *Example: we are comparing school age children, we <u>aren't</u> going to get any adult samples.*
- Norm-referenced tests help answer the question, ***<u>"How does my client compare to the average?"</u>***
- How it's done: a study is conducted, then samples that represent a certain population stated in the study are gathered, and then a certain assessment is done, then the scores received from these samples will be used as an assumption that will represent the majority of the same population.
- When this assessment is done in the clinic, we must follow the norms that we reached during the study or while developing the assessment tool further.
- The *results* of the **normative group** are used to create the **normal distribution curve**.
- This **normal distribution** then provides a range of scores *by which others are judged* when they take the *same* test.
- **The normal distribution:**
  - → Often depicted with a *bell shaped* curve
  - → It is symmetrical
  - → It depends on *two quantities*: **the mean** and **standard deviation**
    - o **The mean**: the average → it determines **the peak** and represents **the average** [usually also depicts: **the Median**: the middle point (exactly in the middle) / **the mode**: the most frequent occurring score]
    - o **The standard deviation** determines the width/ spread, and it represents the **distribution** <u>away</u> from the group average.
- While doing the test, we usually <u>assume</u> the ranks/percentages of those taking it
  - → *Example: 1 standard deviation, or well, or really well, or bad, or really bad*.
- Any norm-referenced test, we have these assumptions or different ranks (groups) and from this we can see where everyone lies
  - → *at zero deviation → that's the mean (like in the graphs)*

→ Thus whenever they are farther away from the zero, they are farther away from the mean [whether they were better or worse]

- This test allows the examiner to tell and compare a certain grade or score to the norms and averages given
  → *Example: a teacher compares a student's grades to the average and norm of the class to tell how they are doing*
- The **outliers** are known to be those at the *ends* of the graphs [those who either do really, really bad or really, really good]



Within one deviation [-1 or 1] on this graph are around 34%.

34% + 34% (on both sides) = 68%

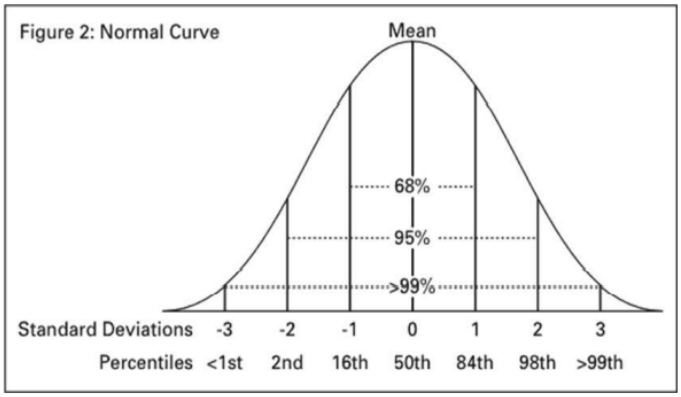
So they take all of the outcomes and say:

68% OF THE OUTCOMES FALL WITHIN *ONE STANDARD DEVIATION OF THE MEAN*

Example on graph above:

- *68% of all outcomes will fall within one standard deviation of the mean (34% on each side)*

[Another example below]



➢ We mostly deal with **the percentile rank**

Example: we say that the child is in the 25% percentile rank then that means that there are 75% of other children are better than them. The higher the percentile rank of the child, the better it is.

Types of scores in a standardized Assessment:

1. *Standardized testing → scores* (quantitative measures)

2. *A test administration (a raw score)*:
- **Raw score**: the actual score one got on a test (ex: 18/20 by itself)
- **The raw score** is then *converted* → to be viewed on a **distribution**
- **Distribution**: Measures **the client's performance** *compared* to the **performance of the norming sample**
- Two statistical measures of a normal distribution:
  - → **Mean**: the arithmetic average of the scores of the norming sample (zero deviation)
  - → **Standard deviation**: the extent to which scores deviate from the mean

The measurement scale for assessment tools:

- **Nominal**: a category is *present* or *absent* (Example: while checking the voice → is their hoarseness, etc.)
- **Optimal**: a numerical scale that can be arranged according to rank orders or levels (Example: different color shades)

Norm-referenced tests advantages:

- The tests are **objective**.
- The skills of an individual can be compared to those of a large group of similar individuals.
- Test administration is **usually efficient**.
- Many norm-referenced tests are widely recognized, allowing for a common ground of discussion when other professionals are involved with the same client.
- Clinicians are not required to have a high level of clinical experience and skill to administer and score tests (administration and interpretation guidelines are clearly specified in the accompanying manual).

Norm-referenced tests disadvantages:

- Norm-referenced tests **do not allow for individualization.**
- Tests are generally static; they tell what a person knows, *not* how a person learns.
- The testing situation may be unnatural and not representative of real life.
- The approach evaluates isolated skills without considering other contributing factors.
- Norm-referenced tests must be administered exactly as instructed for the results to be considered valid and reliable.
- Test materials may not be appropriate for certain populations, such as culturally and linguistically diverse clients.

→ Both Norm-referenced and Criterion-referenced are recognized everywhere [no matter where you go]

2. Criterion-referenced test

- This test does not attempt to compare an individual's performance to anyone else's → they identify what a client can and cannot do compared to a predefined criterion.
- There is no comparing and no number away from the mean, etc. (no normative data)
- Is it *present* or *absent* → no graphs, no score, etc. → **objective**
- These tests help answer the question, ***"How does my client's performance compare to an expected level of performance?"***
- Criterion-referenced tests assume that there is a level of performance that *must* be met for a behavior to be acceptable. → Any performance below that level is considered **deviant**.
- Criterion-referenced tests **may** or **may not** be **standardized**

Criterion-referenced test Advantages:

- The tests are usually **objective**.

→ In order to keep it objective, when the client goes to another person (there should be a team) and through this team, they must all see the results and come to a conclusion so it *doesn't* become subjective.

- Test administration is **usually efficient**.
- Many criterion-referenced tests are **widely recognized**, allowing for a common ground of discussion when other professionals are involved with the same client.
- With **non-standardized** criterion-referenced tests, there is some opportunity for **individualization**

Criterion-referenced test disadvantages:

- The testing situation may be **unnatural** and **not representative** of real life.
- The approach evaluates **isolated skills** without considering other **contributing factors**.
- Standardized criterion-referenced tests do not allow for **individualization**.
- Standardized criterion-referenced tests must be administered **exactly** as instructed for the results to be considered *valid* and *reliable*.

Norm-referenced <u>compared</u> to Criterion-referenced:

<table>
<tr><th>Assessment</th><th>Norm-Referenced</th><th colspan="2">Criterion-Referenced</th></tr>
<tr><td>Simple definition</td><td>• Assessments report whether test takers performed better or worse than a hypothetical average (Norm) of a population,
→ Which is determined by comparing scores against the performance results of a statistically selected group of test takers –
→ Typically of the same age or grade level who have already taken the exam
• They are mostly used by SLPs</td><td colspan="2">• Assessments that are designed to measure one's performance against a fixed set of predetermined criteria or learning standards</td></tr>
<tr><td>Standardized or Non-standardized</td><td>• <u>Always</u> standardized</td><td colspan="2">• Could be standardized or non-standardized</td></tr>
<tr><td rowspan="2">Examples</td><td rowspan="2">• Mean length of utterance (MLU)
• Stuttering severity Instrument (SSI)
• Clinical evaluation of language fundamentals (CELF)</td><td>Standardized</td><td>Non-Standardized</td></tr>
<tr><td>• Assessment,
• Evaluation,
• Programming System for Infants and Children (AEPS)</td><td>• Naturalistic observation</td></tr>
<tr><td>Advantages</td><td>• Allows clinician to determine if the clients has problem:
→ if the problem is clinically significant, and if problem warrants intervention
→ Results of the client can be compared to a large group of similar individuals</td><td colspan="2">• Non-standardized C-RT can be individualized and therefore inclusive
• Pinpointing a student's present level of performance
• Helpful in writing goals and objectives
• Monitoring incremental progress through treatment</td></tr>
</table>

Disadvantages	• Assessment is **not** culturally and linguistically diverse to represent all segments of the society	• **Standardized** C-RT does <u>not allow</u> for **individualization** • Evaluates **isolated skills** *without* considering other **contributing factors**

3. **Authentic assessment tests**:
   - A **non-standardized test**
   - A form of assessment in which patients are asked to perform **real-world tasks** that demonstrate meaningful application of **essential knowledge** and **skills**
   - It is also known as **alternative assessment** or **nontraditional assessment**
   - authentic assessment identifies what a client **can** and **cannot** do
   - The differentiating aspect of **authentic assessment** is its **emphasis** on contextualized test stimuli
   - The test environment is more **realistic** and **natural**
   - Another feature of authentic assessment is that it is **ongoing**
     → The **authentic assessment approach** evaluates the client's performance during **diagnostic** and **treatment** phases.
   - Assessment information is maintained in a **client portfolio** (file)
   - This assessment requires more skilled, experienced, and creative SLPs
   - Involves caregivers and other professionals besides the client
   - There are several strategies recommended for evaluating clients using an authentic assessment approach, which can be modified for different clinical situations:
     → *Systematic observations*
     → *Real-life simulations*
     → *Language sampling*
     → *Structured symbolic play*
     → *Short-answer and extended-answer responses*
     → *Self-monitoring and self-assessment*
     → *Use of anecdotal notes and checklists*
     → *Videotaping*
     → *Audiotaping*
     → *Involvement of caregivers and other professionals*

Authentic assessment advantages:

- The approach is **natural** and **similar** to the real world.
- Clients participate in **self-evaluation** and **self-monitoring**.
- The approach allows for **individualization** → this is particularly beneficial with **culturally diverse** clients or special needs clients, such as those who use augmentative or alternate communication (AAC) systems.
- The approach offers **flexibility**

Authentic assessment disadvantages:

- The approach may **lack objectivity**
- Procedures are **not usually standardized**, thus **reliability** and **validity** are less assured
- Implementation requires a high level of clinical experience and skill
- The approach is **not efficient** → requiring a lot of planning time
- Authentic assessment may be **impractical** in some situations.

2) Dynamic assessment (DA) → *a type of authentic assessment*

- The purpose of **dynamic assessment** is to evaluate a client's **learning potential** based on his or her ability to **modify responses** after the clinician provides teaching or other assistance
- Measures the client's ability to **learn over time** when provided with instructions
- An especially **appropriate strategy** when assessing clients with **cognitive communication disorders** or those from **culturally and linguistically** diverse backgrounds
- The dynamic assessment approach follows a **test-teach-retest** method:
  - → 1. A test is administered **without prompts** or **cues** to determine current performance
  - → 2. The clinician teaches **strategies specific to the skills being evaluated**, observing the client's response to instruction and adjusting teaching accordingly. (This is referred to as a *mediated learning experience, or MLE*.)
  - → 3. The test is **re-administered** and results from the **pre-test** and **post-test** are *compared*
- It is **highly interactive**
- The clinician pays particular attention to teaching strategies that were **effective** at improving the client's success
- Dynamic assessment allows the clinician [as part of the diagnostic process] to determine **baseline ability** and **identify appropriate goals and strategies** for **intervention**.
  - → If one of the clinician's purposes is to discern a **language difference** vs. **a language impairment**:
    - clients who **do not demonstrate improvement** after teaching likely have a **language impairment**
    - clients who are able to make **positive changes** following brief teaching experiences are likely to have a **language difference**

Psychometric principle:

- ***Psychometrics*** refers to the measurement of:
  - **human traits**
  - **abilities**
  - **certain processes**
  - → It is what speech-language pathologists do when **evaluating a client's communication**

What are the basic principles of Psychometrics?

1. ***Validity*** *2.* ***Reliability*** *3.* ***Standardization***

1. **Validity**: means that a test truly measures what it claims to measure
   - Types of validity:
     - → **Face validity**: means that a test looks like it assesses the skill it claims to assess. A lay person can make this judgment.
       - Face validity alone is not a valuable measure of validity because it is based merely on appearance, not on content or outcomes
     - → **Content validity**: means that a test's contents are representative of the content domain of the skill being assessed [the extent to which the items on a test are fairly representative of the entire domain the test seeks to measure].
       - For example, a valid articulation test should elicit **all phonemes**, thereby assessing the spectrum of articulation.
       - Content validity is related to face validity → content validity, though, judges the actual content of the test (rather than superficial appearance) and is judged by individuals with expert knowledge.
     - → **Construct validity**: means a test measures a predetermined theoretical construct, which is an explanation of a behavior or attribute based on empirical observation [the extent to which the measure 'behaves' in a way consistent with theoretical hypotheses and represents how well scores on the instrument are indicative of the theoretical construct].
       - For example, the theoretical construct that preschool children's language skills improve with age is based on language development studies. Therefore, a valid test of early language development will show improved language skills when administered to normally developing preschool children of progressively increasing ages.
     - → **Criterion validity** refers to validity that is established by use of an external criterion [an estimate of the extent to which a measure agrees with a gold standard].
       - There are two types of criterion validity:
         - ➔ **Concurrent validity**: refers to a test's validity in comparison to a widely accepted standard.
           - ✓ For example, the Stanford-Binet Intelligence Scale is already accepted as a valid assessment of intelligence. Newer intelligence tests are compared to the Stanford-Binet, which serves as the criterion measure
         - ➔ **Predictive validity**: refers to a test's ability to predict performance (the criterion measure) in another situation or at a later time. It implies that there is a known relationship between the behaviors the test measures and the behaviors or skills exhibited at some future time.
           - ✓ College entrance exams, such as the Graduate Record Examination (GRE), are used because of their predictive validity. The GRE scores are expected to predict future academic performance.

2. **Reliability**: means results are replicable. When administered properly, a test gives consistent results on repeated administrations or with different interpreters judging the same administration
   - Reliability of the test is **influenced** by several factors:
     → *Fluctuations in examinee's behavior*
     → *Examiner's error* (not following the procedures in the manual) - instrumentation or equipment errors
   - Types of reliability:
     → **Test-retest reliability**: refers to a test's stability over time.
       - It is determined by administering the same test multiple times to the same group and then comparing the scores. If the scores from the different administrations are the same or very similar, the test is considered stable and reliable.
     → **Split-half reliability**: refers to a test's internal consistency.
       - Scores from one half of the test correlate with results from the other half of the test.
       - The halves must be comparable in style and scope and all items should assess the same skill.
       - This is often achieved by dividing the test into odd-numbered questions and even-numbered questions.
     → **Rater reliability**: refers to the level of agreement among individuals rating a test.
       - It is determined by administering a single test and audio- or videotaping it so it can be scored multiple times.
       - There are two types of rater reliability:
         ➔ **Intra-rater reliability**: is established if results are consistent when the same person rates the test on more than one occasion.
         ➔ **Inter-rater reliability**: is established if results are consistent when more than one person rates the test
     → **Alternate form reliability** [also called **parallel form reliability**]: refers to a test's correlation coefficient with a similar test.
       - It is determined by administering a test (Test A) to a group of people and then administering a parallel form of the test (Test B) to the same group of people.
       - The two sets of test results are compared to determine the test's alternate form reliability.
3. **Standardization**
   - **Standardized tests** [also called **formal tests**] are those that provide standard procedures for the administration and scoring of the test
   - Standardization is accomplished so that test-giver bias and other extraneous influences do not affect the client's performance and so that results from different people are comparable
   - Most of the standardized tests clinicians use are **norm-referenced**
   - Any type of test can be standardized as long as **uniform test administration** and scoring are used
   - Test developers are responsible for clearly outlining the **standardization** and **psychometric aspects** of a test. Each test's manual should include information about:
     - The purpose(s) of the test

- The age range for which the test is designed and standardized
- Test construction and development
- Administration and scoring procedures
- The normative sample group and statistical information derived from it
- Test reliability
- Test validity

Standardized test administration:

There are some foundational principles that apply to most tests.

1) **Determining Chronological Age**
   - **Chronological age** is the exact age of a person in **years**, **months**, and **days**.
   - It is important for analyzing findings from standardized tests, as it allows the clinician to convert raw data into meaningful scores.
   - To calculate chronological age:
     1) **Record** the test administration date as year, month, day
     2) **Record** the client's birth date as year, month, day
     3) **Subtract** the birth date from the test date.
        - If necessary, borrow 12 months from the year column and add to the month column, reducing the year by one, and/or borrow 30 or 31 days (based on number of days in month borrowed from) from the months column and add to the days column, reducing the month by one

Test date is April 2, 2015. Client's birth date is December 12, 2008.

2015	4	2
−2008	12	12

Adjusted after borrowing from month and year columns:

2014	15	33
−2008	12	12
6	3	21

Chronological age is 6 years, 3 months, 21 days.

The second is a simpler example, requiring no borrowing of months or days:

Test date is July 25, 2015. Client's birth date is May 10, 2005.

2015	7	25
−2005	5	10
10	2	15

- For preemie infants and toddlers, it is important to consider **adjusted age** [also referred to as **corrected age**]
  - → **Adjusted age** takes into account the **gestational development** that was missed due to premature delivery.
  - → *For example: a normal 10-month old baby born 8 weeks premature would be more similar, developmentally, to a normal 8-month old*
  - → This is important when considering milestones that have or have not been achieved and when applying standardized norms.
  - → **Adjusted age** is determined by using the child's due date, rather than actual birth date, when calculating chronological age.
  - → **Adjusted age** becomes less relevant as a child grows, and is generally not a consideration for children over age 3

2) Basals and Ceilings

- **Basal** refers to the starting point for test administration and scoring
- **Ceiling** refers to the ending point
- **Basals** and **ceilings** allow the tester to hone in on only the most relevant testing material. → It would not be worthwhile or efficient, *for example: to spend time assessing pre-speech babbling skills in a client who speaks in sentences, or vice versa.*
- A starting point is suggested according to a **client's age**.
  - → The basal is then established by eliciting a certain number of consecutively correct responses
  - → If the **basal** cannot be established from the **recommended starting point**, test items before the suggested starting point are administered until the predetermined number of consecutively correct responses is elicited.
  - → For example, if a test's basal is three consecutively correct responses, and the **recommended starting point** is test item #20, the tester will start test administration on item #20. If, however, the client **does not** answer three consecutive prompts correctly, the tester will **work backwards** from test item #20 until the basal is established (i.e., administer test items #19, #18, #17, etc.)
  - → A **ceiling** is typically determined by a requisite number of consecutively incorrect responses
- **Basals** and **ceilings** vary with every test.
- Many tests do not have a basal or ceiling and are designed to be administered in their entirety

3) Standardized Administration, Modification, and Accommodation

- **Standardized tests** are designed to be administered in a formulaic manner. That makes them, by definition, **standardized**.
  - → It is important to administer test items according to the **protocol** outlined in the test manual
  - → **Normative scores** are not valid for a client who is not reflected in the **normative sample**, even when standardized administration is applied

- **Accommodations:** are minor adjustments to a testing situation that do not compromise a test's standardized procedure
    - → *For example: large-print versions of visual stimuli may be used, or an aide may assist with recorded responses. As long as the content is not altered, the findings are still considered valid and* ***norm-referenced scores*** *can still be applied*
- **Modifications**: are changes to the test's standardized administration protocol
    - → *For example: a test giver might re-word or simplify instructions, allow extra time on timed tests, repeat prompts, offer verbal or visual cues, skip test items, allow the test taker to explain or correct responses, and so forth*
    - → Any such instance of altering the standardized manner of administration **invalidates the norm-referenced scores**

Code of fair testing practices in education:

There are two parts to the Code:

- one is for test developers and publishers
- the other is for those who administer and use the tests

For the test user:

1) **Selecting Appropriate Tests** → Test users should select tests that meet the intended purpose and that are appropriate for the intended test takers
2) **Administering and Scoring Tests** → Test users should administer and score tests *correctly* and *fairly*
3) **Reporting and Interpreting Test Results** → Test users should *report* and *interpret* test results *accurately* and *clearly*
4) **Informing Test Takers** → Test users should inform test takers about the *nature of the test*, *test taker rights and responsibilities*, *the appropriate use of scores*, and *procedures for resolving challenges to scores*.

Chapter Two: Multicultural Considerations

Preparatory considerations:

Culturally and **linguistically diverse** (CLD) clients present unique challenges to clinicians assessing communicative skills.

→ These clients come from a wide range of **socioeconomic circumstances**, **educational** and **cultural linguistic** backgrounds, and **personal experiences**.
→ They also demonstrate varying degrees of English proficiency

Pre-assessment knowledge:

- Before evaluating a **CLD client**, a clinician needs to understand the client's:
  → **Culture** [normal communication development associated with the culture]
  → **Personal history**
- Without this knowledge:
  → assessment procedures may be *inappropriate*
  → diagnostic conclusions may be *incorrect*

A. Know the culture of the client:

- Every culture has a set of **pragmatic social rules** that guide **communicative behaviors**
- Knowledge of these rules enables clinicians to exchange information with clients and their caregivers in a culturally sensitive manner
- A disregard for these rules may:
  → be **offensive**,
  → could result in **misunderstandings**
  → could lead to an **inaccurate diagnosis**
- within each culture → there is **individual variation** → What is true for a culture as a whole may not be true for an individual from that culture

1) Cultural groups have differing views of disability and intervention

- Examples:
  → In other cultures, parents may feel personally responsible for a child's disability *[certain Hispanic groups].*
  → In certain religions, it is believed that a disability is a spiritual gift or punishment *[Hindu, Native American Spiritism]*
- In these cases, the client may be opposed to any intervention that would change the disability

2) Cultural groups hold diverse views of a woman's role in society

- Example:
  → In some cultures clients or their caregivers may not respect female professionals *[Arab]*

→ It may be socially inappropriate for a female professional to make any physical contact with a man [such as a handshake] or to ask a man direct questions

3) ***Cultural groups hold different views of familial authority***
   - Example:
     → In some cultures the father is the spokesperson for the family and the highest authority. Addressing anyone other than the father may be considered disrespectful [Middle Eastern regions, Hispanic, Asian]

4) ***Names and titles you will use during communicative exchanges may vary among different cultures***
   - Example:
     → In some cultures it is more common to address certain family members by relationship rather than name [Asian]

5) ***Certain cultural groups may be uncomfortable with many of the case history and interview questions that are often asked in some settings in the United States***
   - Example:
     → In some cultures certain questions may be perceived as rude and highly personal [African American]

6) ***Certain cultural groups may be uncomfortable with some of the testing practices we traditionally use***
   - Example:
     → Not all cultural groups use **pseudo questions** → These are questions that are asked not to gain new knowledge but to test the person being questioned

7) ***Individual achievement is viewed differently among cultural groups***
   - Example:
     → In some cultural groups group performance is valued more highly than individual performance [Middle Eastern, African American]

8) ***Cultural groups hold differing views about a child's behavior in the company of adults***
   - Example:
     → In some cultural groups children are expected to be seen and not heard [Asian]

9) ***Cultural groups maintain different views about the use of eye contact in communication***
   - Example:
     → In some cultures it is disrespectful for a child to make frequent or prolonged eye contact with adults because it is perceived as a challenge to authority [African American, Hispanic]

10) ***Cultural groups view time differently***
   - Example:
     → In some cultures arriving on time for an appointment or answering questions within a proposed time frame is unnecessary [Hispanic, Native American, Middle Eastern]

11) Different cultural groups express disapproval in varying ways

- Example:
  - → Caregivers may appear cooperative and agreeable during interview situations, but they may be merely *"saving face"* or showing courteous respect while having no intention of following through with your recommendations or requests

12) Perceptions of personal space vary across cultures

- Example:
  - → In some cultures physical distance between people is rather close. They may be offended if you step away from them during conversation [Hispanic]

13) Certain cultural groups expect varying amounts of small talk before engaging in the business at hand

- Example:
  - → In some cultures it is rude to jump right to business without engaging in a satisfactory level of preliminary small talk [Hispanic, Arab]

14) Some cultural groups harbor generalized mistrust of other cultural groups

- These are typically politically driven hostilities → Whether justified or not, it is important to be aware of them

- **Ethnography** is one method of becoming more culturally knowledgeable
  - ➔ **Ethnography** is the **scientific study of a culture**
  - ➔ **Ethnographic research** is accomplished by **observing** and **interviewing** members of a culture
  - ➔ Its purpose is to <u>understand a culture from an insider's perspective without interjecting personal judgments or biases</u>

B. <u>Know the history of the client:</u>

- In addition to the questions asked as part of a traditional case history, there are questions particularly relevant to the assessment of CLD clients.
- Answers to certain questions offer insight into a client's current and past cultural linguistic environments
- *For example: individuals with limited English proficiency may not understand the questions or be able to write the responses*

C. <u>Know the Normal Communicative Patterns of the Client's Dominant Language</u>

- It is important to be familiar with normal communication patterns associated with a cultural group → or else it will be difficult to determine whether a client is demonstrating a **communicative disorder** or a **communicative difference**
- Within any language, there may be many dialects.
  - → Dialect is **not a disorder** → it is important to know the characteristics of a client's dialect
- For many languages there are no published data that help identify what is normal versus what is delayed or disordered.

→ In these situations, clinicians must do some investigating
→ This is usually accomplished by **interviewing** others who are very familiar with the **cognitive** and **linguistic developmental patterns** of the language
→ Sources of this information may include:
  - *Other professionals → especially speech-language pathologists*
  - *Interpreters*
  - *Teachers who have taught children who are of the same cultural background and age*
  - *The client's family members*
  - *Community members from the same culture*

Normal Patterns of Second-Language Acquisition

- There are normal processes that occur during the acquisition of a second language
- These are important to understand because they can help to differentiate between a **language disorder** and a **language difference**
- Roseberry-McKibbin (2008) identified the following six normal processes of second- language acquisition:
  1) **Interference or transfer** → this occurs when **communicative behaviors** from the first language are transferred to the second language
  2) **Fossilization** → this occurs when specific **second-language errors** become ingrained even after the speaker has achieved a high level of second-language proficiency
  3) **Interlanguage** → this occurs when a speaker develops a **personal linguistic system** while attempting to produce the target language.
     - **Interlanguage** is constantly changing as the speaker becomes more proficient in the second language
  4) **Silent period** → this is a period of time when a second-language learner is actively listening and learning but speaking little.
  5) **Code-switching** → this occurs when a speaker **unknowingly alternates** between two languages
  6) **Language loss** → this is a **decline** in a speaker's **first-language** proficiency while a second language is being learned

Planning and completing the assessment:

A **good assessment incorporates** all of the knowledge obtained thus far so that **valid** and **reliable** assessment data are obtained in a culturally sensitive manner.

Take the following steps when planning and administering an evaluation:

1) Use **culturally appropriate assessment** materials.
2) **Collect** multiple speech-language samples → Collect samples from a variety of contexts
   - *Example: such as home, school, playground, neighborhood, and work*
3) Use **narrative assessment**. Evaluate the client's ability to construct and recall stories
   - Wordless storybooks may be particularly helpful
4) Focus on the client's ability **to learn** rather than focusing on what the client **already knows**.

- This will help determine whether the client's current **communicative patterns** are due to limited experience with the language or due to an underlying language-learning disability

5) Be prepared to **modify** your assessment approach as you learn more about the client's abilities
   - Allow the process to be **dynamic** and **flexible**
6) **Consult** with other professionals → such as physicians and teachers.
   - It is often helpful to review medical or academic records.
   - Some teachers may have experience working with students of a similar age and background and can provide information about the client's behaviors in comparison to the client's peers.
7) **Be sensitive** when meeting with clients or caregivers in an interview situation.
8) Make every effort to help them **feel as comfortable** as possible
   - Keep in mind that some clients or caregivers **may not** value the (re)habilitative process

Making a diagnosis

When evaluating the speech-language samples, the **presence** of these behaviors may be **indicators** of a disorder:

- **Nonverbal aspects** of language are **inappropriate**.
- The client **does not adequately express basic needs**.
- The client **rarely initiates verbal interaction** with peers.
- When peers initiate interactions, the **client responds sporadically**.
- The client **replaces speech with gestures** and communicates nonverbally when talking would be more appropriate.
- Peers indicate that they have **difficulty understanding** the client.
- The client often **gives inappropriate responses**.
- The client has **difficulty conveying thoughts** in an **organized**, **sequential manner** that is understandable to listeners.
- The client shows **poor topic maintenance**.
- The client has **word-finding difficulties** that are caused by factors other than the client's limited experience using the language.
- The client has **difficulty taking turns appropriately** during communicative interactions.
- The client **fails to ask and answer questions** appropriately.
- The client needs to have **information repeated**, even when that information is easy to comprehend and expressed clearly.

Chapter Three: Obtaining Pre-assessment Information

Obtaining Pre-assessment Information:

Primary sources of pre-assessment information include:

- Written Case Histories
- Information-Gathering Interviews
- Information from Other Professionals

Written Case Histories:

- The written case history is a starting point for **understanding clients** and their **communicative problems**
- A case history form is typically completed by the client or a caregiver and reviewed by the clinician prior to the initial meeting
- This enables the clinician to:
  - → **Anticipate** those areas that will require assessment
  - → **identify** topics requiring further clarification
  - → **preselect** appropriate evaluation materials and procedures for use during the evaluation session
- But sometimes the value of a case history form as a pre-assessment tool is **limited**, due to potential problems such as:
  - The respondent may **not understand all the terminology** on the form.
    - → As a result, **inaccurate** or **incomplete** information may be provided
  - Insufficient time may be provided to complete the entire form.
    - → Realize that it can take **considerable time** to collect certain requested information → such as dates of illnesses or developmental history
  - The respondent **may not know**, or may have only **vague recall of**, certain information.
    - → The **amount** and **accuracy** of information provided is related to the **length** and **depth** of the relationship between the client and the person completing the form → the *client's parent*, *grandparent*, *spouse*, *sibling*, *social worker*, *teacher*, *or others* will not all have **equal knowledge** of the client's history and **communicative behavior**.
  - **Significant time** may have **elapsed** between the onset of the problem and the speech-language assessment.
    - → Respondents will usually have a **greater recollection** of recent events than events that occurred months or even years ago.
  - Other life events or circumstances may **hinder the respondent's ability t**o recall certain information.
    - → *For example: the parent of an only child will probably remember developmental milestones more clearly than the parent who has several children.*

→ *Or the parent of a child with multiple medical, communicative, and academic problems will likely be less focused on speech and language development than the parent of a child who has only a communication disorder.*

- **Cultural differences** may interfere with **accurate provision** of information. The respondent may **not understand** cultural innuendos reflected in the case history queries, or by their own responses

Information-Gathering Interviews:

Professionals in communicative disorders generally conduct **three types** of interviews

- **information-gathering**
- **information-giving**
- **counseling interviews**

1) The **information-gathering interview** [sometimes called an **intake interview**] consists of three phases:
   - **<u>the opening</u>**
     - Introductions
     - Describe the purpose of the meeting
     - Indicate approximately how much time the session will take

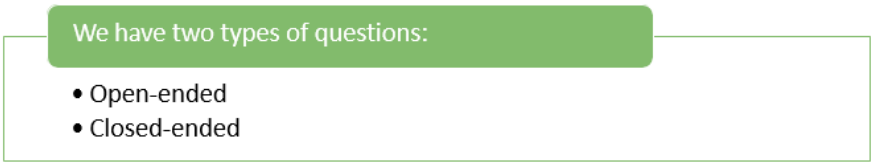
For example: "I am Mrs. Smith, the speech pathologist who will be evaluating Sarah's speech today. I'd like to begin by asking you some questions about her speech. Then I'll spend some time with Sarah by herself and get together with you again when we are finished. This should take about 90 minutes."

   - **<u>the body</u>**
     - **Discuss** the client's history and current status in depth.
       1) Focus on **communicative development**, **abilities**, **and problems**, along with other pertinent information such as the client's **medical**, **developmental**, **familial**, **social**, or **educational history**.
     - If a written case history form has already been completed, **clarify** and **confirm** relevant information during this portion of the interview

   - **<u>the closing</u>**
     - **Summarize the major points** from the body of the interview
     - **Express your appreciation** for the interviewee's help
     - **Indicate the steps** that will be taken next

For example: "Thank you for all of the helpful information. Now I'd like to spend some time with Sarah and evaluate her speech. In about an hour we will get together again, and I'll share my findings with you."

Questions common to most CD's



- **Closed-ended:** questions typically elicit short, direct responses
- **Open-ended**: questions are less confining → allowing the respondent to provide more general and elaborate answers
- It is usually best to **begin** an interview with **open-ended questions**.
    1) This will help identify primary concerns that often require further clarification and follow-up through **closed-ended questions**.

The following questions are often asked about most communicative disorders during the body of the interview:

- *Please **describe** the problem.*
- ***When** did the problem begin?*
- ***How** did it begin? Gradually? Suddenly?*
- *Has the problem **changed** since it was first noticed? Gotten better? Gotten worse?*
- *Is the problem **consistent** or **does it vary**? Are there certain circumstances that create fluctuations or variations?*
- *How do you **react** or **respond** to the problem? Does it bother you? What do you do?*
- *Where else have you been seen for the problem? What did they suggest? Did it help?*
- *How have you tried to help the problem? How have others tried to help?*
- *What other **specialists** (physician, teachers, hearing aid dispensers, etc.) have you seen?*
- *Why did you decide to come in for an evaluation? What do you hope will result? (Shipley & Roseberry-McKibbin, 2006)*

Common Questions to Specific Communicative Disorders

Articulation:

- Describe your concerns about your speech.
- What is your native language? What language do you speak most often?
- What language is spoken most often at home? At school? At work?
- How long have you been concerned about your speech? Who first noticed the problem?
- Describe your speech when the problem was first noticed. Has it improved over time?
- Has your hearing ever been tested? When? Where? What were the results?
- As a child, did you have ear infections? How often? How were they treated?
- What do you think is the cause of your speech problem?

- What sounds are most difficult for you?
- Is it difficult for you to repeat what other people have said?
- Are there times when your speech is better than others?
- How well does your family understand you? Do they ask you to repeat yourself?
- How well do your friends and acquaintances understand you? Do they ask you to repeat yourself?
- Does your speech affect your interactions with other people? How does it affect your work? Your social activities? Your school activities?
- What have you done to try to improve your speech?
- Have you had speech therapy before? When? Where? With whom? What were the results?
- During the time you have been with me, has your speech been typical? Is it better or worse than usual?

Language (Child):

- Describe your concerns about your child's language.
- What is your child's native language? What language does your child speak most often?
- What language is spoken most often at home? At school? At work?
- Whom does your child interact with most often? What kinds of activities do they do together?
- Does your child seem to understand you? Others?
- How well do you understand your child?
- Does your child have a history of recurrent ear infections? At what age(s)? How were they treated?
- Has your child's hearing ever been tested? When? Where? What were the results?
- Does your child maintain eye contact?
- How does your child get your attention (through gestures, verbalizations, etc.)?
- How does your child express needs and wants?
- Approximately how many words does your child understand?
- Approximately how many words does your child use?
- Provide an estimate of your child's average sentence length. Approximately how many words does your child use in his or her longest sentences
- Does your child follow:
    - *Simple commands (e.g., put that away)?*
    - *Two-part commands (e.g., get your shoes and brush your hair)?*
    - *Three-part commands (e.g., pick up your toys, brush your teeth, and get in bed)?*
- Does your child ask questions?
- Does your child use:
    - *Nouns (e.g., boy, car)?*
    - *Verbs (e.g., jump, eat)?*
    - *Adjectives (e.g., big, funny)?*
    - *Adverbs (e.g., quickly, slowly)?*
    - *Pronouns (e.g., he, they)?*
    - *Conjunctions (e.g., and, but)?*
    - *-ing endings (e.g., going, jumping)?*

    - *Past-tense word forms (e.g., went, jumped)?*
    - *Plurals (e.g., dogs, toys)?*
    - *Possessives (e.g., my mom's, the dog's)?*
    - *Comparatives (e.g., slower, bigger)?*
- Does your child appear to understand cause-and-effect relationships? The function of objects?
- Is your child able to imitate immediately? Following a short lapse of time? How accurate is the imitation?
- Can your child narrate or talk about experiences?
- Does your child know how to take turns in conversation?
- Is your child's speech usually appropriate to the situation?
- Does your child participate in symbolic play (e.g., use a stick to represent a microphone)?

Language (Adult):

- What is your native language? What language do you speak most often?
- Do you have a problem in your native language and in English?
- How long have you been concerned about your language? Who first noticed the problem?
- Describe your language abilities when the problem was first noticed. Have they improved over time?
- Do you read? How often? What kinds of books do you read?
- Describe your education. Did you have any problems learning?
- What do you think is the cause of your language problem?
- What does your family think about the problem?
- Does your language affect your interaction with other people? How does it affect your work? Your social activities?
- Have you had any accidents or illnesses that have affected your language?
- Have you ever had your hearing tested? When? Where? What were the results?
- What have you done to try to improve your language skills?
- Have you had language therapy before? When? Where? With whom? What were the results?

Stuttering:

- Describe your concerns about your speech.
- When did you first begin to stutter? Who noticed it? In what type of speaking situations did you first notice it?
- Describe your stuttering when it was first noticed. How has it changed over time?
- Did anyone else in the family stutter (parents, brothers, sisters, grandparents, uncles, aunts, cousins, etc.)? Do they still stutter? Did they have therapy? lf so, did it help?
- Why do you think you stutter?
- Does the stuttering bother you? How?
- How does your family react to the problem?
- How do your friends and acquaintances react to the problem?
- What do you do when you stutter?
- When you stutter, what do you do to try to stop it? Does your strategy work? If yes, why do you think it works? If no, why not?

- In what situations do you stutter the most (over the telephone; speaking to a large group; speaking to your spouse, boss, or someone in a position of authority; etc.)?
- In what situations do you stutter the least (speaking to a child, speaking to your spouse, etc.)?
- Do you avoid certain speaking situations? Describe these.
- Do you avoid certain sounds or words? Which ones?
- Does your stuttering problem vary from day to day? How does it vary? Why do you think it varies?
- What have you done to try to eliminate the stuttering (previous therapy, self-help books, etc.)? What were the results?
- Have you had speech therapy before? When? Where? With whom? What were the results?
- Does your stuttering give you difficulties at work, at school, or at home? Are there other places that it gives you trouble?
- Have you had any illnesses or accidents that seemed to affect your speech? Describe these.
- During the time you have been with me, has your speech been typical? Are you stuttering more or less than usual?

Voice:

- Describe your concerns about your voice.
- How long have you had the voice problem? Who first noticed it?
- Describe your voice when the problem was first noticed. How has it changed over time?
- What do you think is the cause of your voice problem?
- Do you speak a lot at work? At home? On the telephone? At social events or in large groups?
- What types of activities are you involved in?
- Do you ever run out of breath when you talk? Describe those situations.
- In what speaking situations is your voice the worst?
- In what situations is your voice the best?
- Is your voice better or worse at different times of the day?
- How does your family react to your voice problem?
- How do your friends and acquaintances react to your voice?
- How does your voice affect your interactions with other people? How does it affect your work? Your social activities? School?
- What have you done to try to resolve the problem?
- Have you seen an ear, nose, and throat specialist? What were the results?
- Have you had speech therapy before? When? Where? With whom? What were the results?
- Have you had any illnesses or accidents that seemed to affect your voice? Describe these.
- During the time you have been with me, has your voice been typical? Is it better or worse than usual?

Information from other professionals:

There are many sources for such pre-assessment information including:

- other **speech-language pathologists**
- **Audiologists**

- **Physicians** (general or family practitioners, pediatricians, otolaryngologists, neurologists, psychiatrists, etc.)
- **Dentists** or **orthodontists**
- **Regular** and **special educators** (classroom teachers, reading specialists, etc.)
- **school nurses**
- **clinical** or **educational psychologists**
- **occupational** or **physical therapists**
- **Rehabilitation** or **vocational counselors**

Information from other professionals may help identify:

- The **history** or **etiology** of a disorder
- **Associated** or **concomitant** medical, social, educational, and familial problems
- **Treatment histories** [including the effects of treatment]
- Prognostic implications
- **Treatment options** and **alternatives**

Chapter Four: Reporting assessment findings

Information-giving conference:

There are two primary methods for conveying clinical findings, conclusions, and recommendations:

- information-giving conferences
- written reports

- **Information-giving conferences** usually consist of an **introduction**, **a discussion of findings**, and a **conclusion**
- The basic information in each phase includes:

Introduction:

- Introduce the **purpose** of the meeting
- Indicate **approximately how much time** the session will take
- Report whether **adequate information** was obtained during the assessment
- If reporting to caregivers, describe the client's behavior during the assessment

For example: "Sarah was very cooperative and I enjoyed working with her. I was able to get all of the information I needed. I'd like to spend the next 10–15 minutes sharing my results and recommendations with you. Here's what I found. . . ."

Discussion:

- Discuss the **major findings** and **conclusions** from the assessment.
- Keep your language **easy to understand** and jargon-free.
- **Emphasize the major points** so that the listener will be able to understand and retain the information you present.
- Provide **a written report** that summarizes findings.
- Use illustrations, charts, and/or diagrams as needed to help explain and clarify certain materials.

Conclusion:

- **Summarize** the major findings, conclusions, and recommendations.
- **Ask if the listener** has any further comments or questions.
- **Thank the person** for his or her help and interest.
- **Describe the next steps** that will need to be taken
    2) *For example: seeing the client again, making an appointment with a physician, beginning treatment*

For example: "Thank you for bringing Sarah in today. Do you have any more questions before we finish? Once again, (restate major points). . . . That's why I think the next thing we should do is. . . ."

Writing assessment reports:

An **Evaluation report** for SLPs is the set of information that is typically provided by the clinician when the assessment process is completed and is also called:

- Assessment Report
- Diagnostic Report

➢ The **Evaluation report** should be written by a certified clinician/SLP (or under his/her supervision)

The **Evaluation report** should be:

- Objective (mostly)
- Accurate
- Sensitive
- Concise
- Complete
- Well organized
- Honest

The Importance of an Evaluation Report:

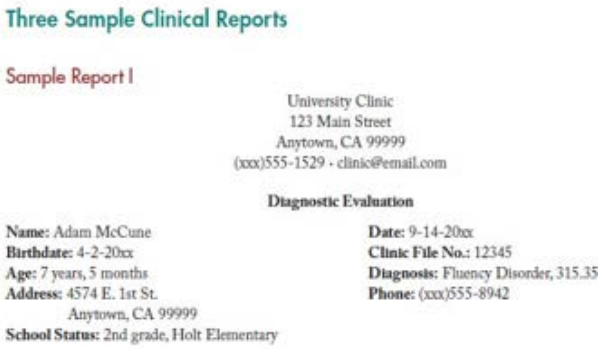
- Communicates **specific findings** about a client
- **Acts as a guide** for **referrals** for additional services
- Communicates information to and **help establish relationship** with other professionals
- **Starting point for understanding** clients and their communicative disorders
- Enables the clinician **to anticipate areas** that require further assessment
- **Serves as documentation** for research
- Helps establish the **clinician's credibility**

Speech and Language Assessment Protocol (General Diagnostic Report Format):

- **Most** assessment/diagnostic **reports** have **similar format** which include the following components:
    1) **Identification Information**
    2) **Description of Patient/family Concerns and Referrals**
    3) **History or Background Information**
    4) **Examination**
    5) **Clinical Impressions**
    6) **Summary**
    7) **Prognosis**
    8) **Recommendations**
    9) **SLP Name and Signature**

Identifying Information:

- Name
- Date of birth/age
- School/teacher/grade (if appropriate)
- Address
- Phone numbers
- Email addresses
- Physician(s)
- Billing party (if appropriate)
- Diagnostic code (if appropriate)
- Date of evaluation



Three Sample Clinical Reports

Sample Report I

University Clinic
123 Main Street
Anytown, CA 99999
(xxx)555-1529 - clinic@email.com

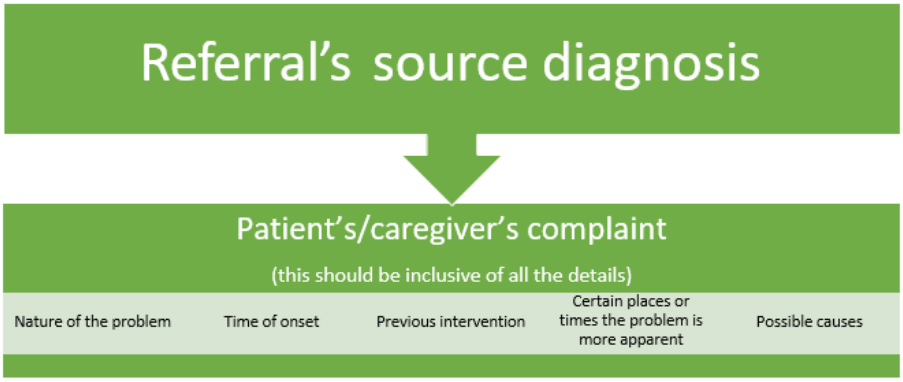
Diagnostic Evaluation

Name: Adam McCune
Birthdate: 4-2-20xx
Age: 7 years, 5 months
Address: 4574 E. 1st St.
Anytown, CA 99999
School Status: 2nd grade, Holt Elementary

Date: 9-14-20xx
Clinic File No.: 12345
Diagnosis: Fluency Disorder, 315.35
Phone: (xxx)555-8942

Overview/Background/Presenting Complaint/Initial Status:

- Referral source
- Dates and locations of previous evaluations and treatment
- Presenting complaint (unintelligible speech, disfluency, voice problem, etc.)



History and Presenting Complaint

Adam, a 7-year 5-month-old male, was seen for a speech-language evaluation at the University Clinic on September 14, 20xx. He was accompanied by his mother.

Adam attended Holt Elementary School and received speech therapy two times per week for remediation of disfluent speech. Mrs. McCune reported that Adam began stuttering at approximately 3 years of age. She also stated that his stuttering fluctuated and increased during stressful situations. Mrs. McCune stated that her father also stuttered.

Histories/background information:

- Speech, language, and hearing
- Medical
- Educational
- Psychological/emotional
- Developmental/motor
- Familial
- Social
- Motor
- Occupational (adult)
- Background cues:
  - → **Abnormal presentation**, methods of delivery, **Apgar* info**., birth defects, **jaundice***, breathing difficulties
  - → **Illness/disease/trauma** (illnesses accompanied by high fevers, falls and accidents that involve the head and face, diseases that affect the brain, ears, face, or respiratory system)
  - → **Previous medical tests**: neurological, psychological, hearing, C.T./MRI/EEG, Medications/reasons and hospitalizations.

- **The Apgar score** → the very first test given to a newborn, occurs in the delivery or birthing room right after the baby's birth. The test was designed to quickly evaluate a newborn's physical condition and to see if there's an immediate need for extra medical or emergency care. **A**ppearance, **P**ulse, **G**rimace, **A**ctivity, and **R**espiration.

- ***Jaundice** → also known as **icterus**, is a term used to describe a **yellowish tinge** to the skin and sclera (the white part of the eye) that is caused by an excess of bilirubin in the blood (hyperbilirubinemia). Body fluids may also be yellow.

Assessment Information [examination]:

❖ ***Informal Observation***:

- Observation made **by clinician** upon introduction to the client, and **continues** throughout the
- **interview** and **assessment**
- Report the client's **orientation**, **activity level**, **attentiveness**, **interaction with parents/ clinician**
- Report whether the client **initiated and/or responded readily** to communication
- Comment on the **type of play, response to toys** (for children)
- Comment whether **drooling** was noticed
- Comment on **anything else** that would be **helpful** in understanding the disorder and **making diagnosis**

❖ ***Hearing Screening Results***:

- Summarize essential findings of the audiological examination
- On the basis of the audiologist's report, indicate results obtained

❖ ***Oral mechanism examination***:

- Report relevant information; listing **deviations** noted and their **possible significance** in relation **to** the client's **speech problem**
- **Facial symmetry/asymmetry**
- *Structure and function* of the **lips** - adequacy for speech
- *Structure and function* of the **teeth** - adequacy for speech
- *Structure and function* of the **tongue** - adequacy for speech
- *Structure* of **hard palate** - adequacy for speech
- *Structure and function* of the **velopharyngeal** mechanism -adequacy for speech
- *Structure and function* of the **nasal cavities** -adequacy for speech
- How did the client *perform* **voluntary oral movement**?
- How did the client *perform* **sequential oral movement**?
- State concisely the **significance of** these **findings**
- **Interpret** the result of the oral mechanism examination.

❖ ***Speech skill examination***:

→ Articulation and Phonological Processes

- Through careful listening to spontaneous speech and a reading sample we can:
    - List **phonological processes**
    - List **distortions of phonemes**
    - List **misarticulated phonemes**
    - **Indicate the position** in words in which the errors were made
    - **Summarize info**. about the **consistency of these errors**
    - **Summarized the client's response** to stimulations
    - **Indicate the general intelligibility** of the client's speech
    - Report **diadochokinetic rate**

- State concisely the significance of these findings

→ Fluency-Voice-Prosody:

- Through careful listening to spontaneous speech and a reading sample we can:
  - Report **diadochokinetic rate**
  - **State concisely** the significance of the findings
  - **Note any deviation** from the norm with regards to the normal voice parameters (breathiness, roughness, asthenia and strain)

❖ ***Language skills***:

- **Receptive and Expressive:**
  - **Ask basic questions** that are indicative of the client's receptive language skills.
  - **State concisely** the significance of the findings
  - **Interpret** the result of findings
  - **Concisely state the significance** of the findings
  - **Interpret the result** of tests and language analysis
- **Pragmatic**:
  - How did the client respond to greetings?
  - What about eye contact?
  - Turn taking
  - Topic maintenance?
  - Topic initiation?
  - Concisely state the significance of the findings
  - Interpret the result

❖ ***Cognitive skills***:

- Matching
- Association
- Sequencing
- Categorizing
- State concisely the significance of the analysis
- Interpret the results of the analysis

❖ ***Other related factors***:

- These include information input that is outside the diagnostic report (i.e. information from school reports in cases of children)
  - Concisely state the significance of the information
  - Interpret the results of the findings.

Summary:

- **Overall summery** of all the **significant sections** of the assessment form including **basic identification information**, **clinical impressions** in all fields and recommendations:
    - Summarize your impressions of the client and his/her communication problem
    - What is the communication disorder (diagnosis)?
    - What is the underlying cause if applicable?
    - What are the primary features of the disorder? Provide a brief summary of each area

Prognosis:

- Explain **positive** and **negative indicators**
- Prognosis:
    - **Provide directions** for the treatment
    - Is based on findings
    - What is the general estimate of the predicted time frame for recovery? (If applicable)
    - Is part of the final diagnostic report and not the initial assessment

Recommendations:

- Do we need further speech and language evaluation? What area *(For example: speech, language, voice)* needs further comprehensive assessment?
- Is medical or other referrals necessary? Why?
- Is treatment indicated?
- What happens now? / Where do we go from here?

Signature (Designation):

- This area of the report should include:
    - The clinician name/signature
    - The supervisor/consultant name/signature
    - The date of each signature

SOAP Notes:

Four kinds of information are part of the medical record:

- **S**ubjective
- **O**bjective
- **A**ssessment
- **P**lan

Each type of information is important for understanding the patient/client

Subjective

- **Subjective information** is any that is reported to the clinician about the patient OR behavior the clinician observes that impacts the outcome of a session
- May be reported by client/patient, caregivers, or family members
- Usually, cannot be confirmed by clinician
- *For example: "Miral had a cold all week and that affected her performance"*

Objective

- **Objective information** is the record of what was actually done during the therapy session, including what the client achieved
- Data and activities ONLY – no interpretation
- *For example: "The clinician supplied a picture book with no words. Miral created a story based on the picture. Miral generated 9 sentences using correct chronological transitions (first, then, next, so)."*

Assessment

- In the assessment section, the clinician provides comment on client's progress within the session. Performance goals are specified and new problems may be noted
- *For example: "Miral demonstrated mastery in using transition words between chronological events. She used few descriptions in her narrative."*

Plan

- The plan section is where the clinician makes specific recommendations for what the client should do next
- Use the future tense
- *For example: "Miral will start using more descriptive words and more complex sentences."*

Guidelines for report writing:

Guidelines facilitate the development of a clear, understandable, accurate, grammatically correct, and brief written communicative reports:

- Use **professional terminology** but provide explanations when necessary for nonprofessionals to understand
- **Avoid needless words**
- State the full name of tests, diagnostic labels, institutions, facilities and etc. → the first time you use them in a report → afterwards you can use **abbreviations** or **acronyms**.
- If you are **speculating,** make that clear to the reader → Use phrases such as, **"It appears that," "It seemed as though," "the data suggests that,"** and **"It is possible that"**
- Know your Latin abbreviations and use them correctly
    - *e.g.* → *"for example"*
    - *i.e.* → *"that is"*

USE	AVOID
Specific language	Ambiguous terms
Complete, clearly understood words	Abbreviations
Variety of language styles and words appropriate to needs of the report	Stereotypy
Specific, accurate, **brief** sentences	Verbosity and needless words
Language that conveys sincere, serious **professional** attitude	Flippancy
Complete verb forms and correct punctuation	Contractions and hyphens
Positive statements that show what testing or observations have revealed	Qualifiers (very, really) and noncommittal/ non-expressive language
Personal pronouns when they convey a clear statement in a natural manner	Awkward verbosity
Accurate descriptive language that is supported by facts	Exaggeration and overstatement
The exact words needed to express a concept or idea	Misusing words
Active word construction, when possible	Passive verb forms

Preferred Terminologies:

TABLE 6

Commonly Used Terms in Report Writing

THE PERSON YOU WORK WITH	PROBLEMS WITH COMMUNICATIO
client	speech
patient	communication
child	articulation
youngster	language
student	voice
Suzie (child's name)	rhythm
Mr.	fluency
Ms.	hearing
	deviancy
WHAT YOU DID	deviation
therapy	problem
remediation	disorder
intervention	difficulty
speech rehabilitation	abnormality
assessment	dysfunction
examination	anomaly
testing	impairment
appraisal	defect
YOU	
the (this) clinician	
the (this) therapist	
the (this) examiner	

TERMS WITH PROFESSIONAL TONE

ability	feedback	performed
administered	generalized	production
appeared	goals	progressive
base line	impression	projected
behavior	improved	reinforcement
carry over	increased	reported
causal	indicated	response
characteristics	informant	revealed
conducted	judgment	skill
congenital	manifests	stated
contingent	nature	status
criterion	objectives	symptomatolo
data	observation	target behavior
demonstrates	occurred	tasks
determine	onset	terminated
etiology	outlook	unremarkable
evidenced	parameter	utterance
exhibits	performance	verbalization

PREFERRED TERMS	TERMS TO AVOID
persons who are disabled; people with disabilities	the disabled; crippled; deformed; invalid
congenital disability	defective at birth
partially sighted; visually impaired; blind (total loss of vision)	"blind" regardless of amount of vision; sightless
partial hearing loss; hearing impaired; deaf (total loss of hearing)	"deaf" regardless of amount of hearing; deaf-mute; deaf and dumb
Down syndrome	Mongoloid
mental disorder	mentally defective; crazy
learning disabled	an academic failure
mental retardation	the retarded
nondisabled	able-bodied; normal
seizure disorder	epileptic
person who has arthritis	arthritic; victim of arthritis
uses a wheelchair	confined to a wheelchair

Recommended Guidelines for Composing Reports:

1. Use **simple vocabulary**. Limit sentence length to 18 words or less, and paragraph length to 125 words or less.
2. **Delete the words**: that, by, which, who, and whom. Reconstruct the sentence without them.
3. Choose **short words**.
4. Write in **active voice**.
5. Remove **qualifying adjectives** (i.e. very, quite, much, rather, somewhat, and approximately)
6. Nouns ending in -**ion should be changed to verbs** (i.e. "Her verbalizations were short" —> "She verbalized in short utterances".
7. **Vary the length and type of sentences**.
8. **Make revisions**. Would it make sense to others?
9. **Revise** with the objective of making the complex more simple and the unfamiliar more familiar

Technical writing style:

- **Avoid writing clinical reports in a conversational style**
  → *For example: "He just didn't get the point" versus "He did not appear to understand the task"*
- Use **correct spelling**, **grammar**, and **punctuation** and write in complete sentences.
- Write in the **third person**
  → *For example: "The Token Test administered showed…" rather than "I administered the Token Test"*
- **Avoid use of contracted verb forms**
  → *For example: isn't, can't, I've*
- Give the **full names** of tests when first mentioned before using acronyms and other abbreviations in the remainder of the report.
- **Present information** (particularly case history) in **chronological sequence**.
- **Differentiate clearly** between information reported by others versus information obtained directly through clinician observation.
- **List all data** such as **test scores** or baseline measures **before** providing any interpretative statements. This approach facilitates **interpretation** of a client's overall profile rather than presenting unrelated descriptions of isolated communication skills.
- **Include** information about a client's **strengths as well as weaknesses** in the body of the report.
- **Avoid presenting information** in the **summary** section of any report **that was not introduced previously** in the body of the report.
- Write **reports to communicate with colleagues** using professional terminology, **but** include **simple explanations** and clear examples to make reports **meaningful** to **family members** and other **nonprofessionals**.
- Use **language** that is **specific** and **unambiguous**
  → *For example: "He demonstrated language skills characteristic of 4-year-old children" versus "He demonstrated poor language skills"*
- **Avoid exaggeration** and overstatement
  → *For example: "completely uncooperative," "absolutely intelligible," "never produces /s/," "extremely motivated"*

Proofreading:

A first draft is your first finished report:

- It should be **neat**, complete and proofed. All drafts must be word- processed and printed **double-spaced**.
- Completed test forms/data sheets should be turned in with your first draft.
- **All previous drafts** must be given to the supervisor with each subsequent draft, revision or final copy.
- **Final copies** should be **single-spaced**.

Before you hand your first draft and all subsequent drafts:

- Make sure that you have used the **required report format**.
- **Read the report over**. (In the beginning reading aloud helps correcting).
- **Check** for typos, spelling errors, and grammar errors.

When you get your report back from the supervisor:

- **Read over** the comments and ask for clarification when needed.
- As you make each **suggested change**, check it off in a different color ink to make sure that you have addressed all edits

Sample Reports:

Appendix 4-A.

Three Sample Clinical Reports

Sample Report I

University Clinic
123 Main Street
Anytown, CA 99999
(xxx)555-1529 · clinic@email.com

Diagnostic Evaluation

Name: Adam McCune
Birthdate: 4-2-20xx
Age: 7 years, 5 months
Address: 4574 E. 1st St.
Anytown, CA 99999
School Status: 2nd grade, Holt Elementary

Date: 9-14-20xx
Clinic File No.: 12345
Diagnosis: Fluency Disorder, 315.35
Phone: (xxx)555-8942

History and Presenting Complaint

Adam, a 7-year 5-month-old male, was seen for a speech-language evaluation at the University Clinic on September 14, 20xx. He was accompanied by his mother.

Adam attended Holt Elementary School and received speech therapy two times per week for remediation of disfluent speech. Mrs. McCune reported that Adam began stuttering at approximately 3 years of age. She also stated that his stuttering fluctuated and increased during stressful situations. Mrs. McCune stated that her father also stuttered.

Adam's medical history was unremarkable.

Assessment Findings

Speech: The *Goldman-Fristoe Test of Articulation-2* was administered to assess Adam's production of consonants in fixed positions at the word level. Adam lateralized /s/ and /z/ in all positions. He substituted /nk/ for /n/ in the medial and final positions. Adam was stimulable for /s/ and /z/ at the word level.

A 384-word conversational speech sample revealed similar errors. He also omitted /d/ and /t/ in the final position during connected speech. Adam was 100% intelligible during this sample.

Orofacial Examination: An orofacial examination was administered to assess the structural and functional integrity of the oral mechanism. Facial features were symmetrical. Labial and lingual strength and range of motion were normal during speech and nonspeech tasks. Lingual size and shape were normal. Appropriate velar movement was observed during productions of /a/.

Diadochokinetic syllable tasks were administered to assess rapid movements of the speech musculature. Adam repeated /pʌtəkə/ at a rate of 4.04 repetitions per second. This was within normal limits for a child his age.

Language: The *Peabody Picture Vocabulary Test-IV* was administered to assess receptive vocabulary. A raw score of 92 and a standard score of 108 were obtained. Age equivalency was 8:0 and percentile rank was 70. The results indicated average to above-average receptive vocabulary skills.

Analysis of the conversational speech-language sample revealed appropriate expressive language skills. Syntactic, morphologic, and semantic structures of the language were appropriate. Adam's average length of utterance was 10.9 words.

Voice: Adam exhibited a normal vocal quality. An s/z ratio of 1.0 was obtained.

Fluency: A 384-word spontaneous sample was elicited to assess Adam's fluency rate, and he was 82% fluent on a word-by-word basis. Disfluencies averaged 2 seconds in duration with a range of .8 seconds to 4 seconds. Disfluencies included:

	# Disfluencies	**Percentage**
Sound Interjections	28	17.3%
Word Interjections	11	10.3%
Sound Repetitions	19	15.0%
Word Repetitions	18	12.1%
Phrase Repetitions	18	12.1%
Revisions	13	10.8%
Prolongations	12	10.5%
Total	**69**	**18.1%**

Adam was stimulable for fluent speech at the 3-syllable phrase level when he was required to use an easy onset and syllable stretching.

Hearing: A hearing screen was administered at 20 dB HTL for the frequencies of 250, 500, 1000, 2000, 4000, and 6000 Hz. Adam responded to all sounds bilaterally.

Summary and Recommendations

Adam exhibited moderate disfluency characterized by sound interjections and sound, word, and phrase repetitions. He was stimulable for fluent speech, which suggests a good prognosis for improvement with therapy. Adam also exhibited mild articulatory errors of substitutions and additions. He was stimulable for all phonemes. Expressive and receptive language abilities were age appropriate.

It was recommended that Adam receive speech therapy to train fluent speech and correct his articulation errors.

Stephen D. Marshall, M.A., CCC/SLP
Speech-Language Pathologist

Sample Report 2

University Clinic
123 Main Street
Anytown, CA 99999
(xxx)555-1529 · clinic@email.com

Diagnostic Evaluation

Name: Lisa Breckenridge
Birthdate: 12-12-19xx
Age: 35
Address: 4574 Cedar Ave.
Anytown, CA 99999
Occupation: High School Mathematics Instructor

Date: 6-2-20xx
Clinic File No.: 98765
Diagnosis: Voice Disorder, 784.42
Phone: (xxx)555-0809
Email: lbreckenridge@email.com

History and Presenting Complaint

Mrs. Breckenridge, a 35-year-old female, was referred to the University Clinic by Stuart Goehring, M.D., subsequent to the development of bilateral vocal nodules. The patient complained of a hoarse voice. She reported that the problem started about 5 months ago and had become especially problematic during the last 2 months.

At the time of the evaluation, Mrs. Breckenridge reported that she taught four periods of high school mathematics per day at San Joaquin High School. There were approximately 35 students per class. She stated that she needed to project her voice during that time.

Mrs. Breckenridge stated that she liked to sing, but did so rarely because it aggravated her voice problem. She reported that she did not smoke and consumed a minimal amount of alcohol (i.e., a glass of wine once in a while). She also stated that she did not yell excessively, use inhalants, talk in noisy environments (other than the classroom), or cough excessively. She did not report a history of allergies, asthma, or frequent colds. Caffeine intake included, at most, one or two iced teas per day.

Assessment Findings

Mrs. Breckenridge exhibited the symptoms of vocal nodules. Her voice was characterized by hoarseness, intermittent breathiness, pitch breaks, and intermittent glottal fry. The symptoms were exacerbated when she was asked to increase her vocal intensity. Attempts to increase her loudness levels were accompanied by increased feelings of discomfort in the laryngeal region.

Mrs. Breckenridge's fundamental frequency was approximately 220 Hz when sustaining "ah" for 15+ seconds. An increase in breathiness and the occurrence of pitch breaks were noted during the last 5+ seconds of these vocalizations.

She exhibited a low vertical focus in the use of her voice. This created a lower pitch and poor vocal projection. In an attempt to increase her projection, she increased her vocal effort. This type of vocal abuse is typically associated with the development of vocal nodules.

Appendix 4-A. continued

With instruction and modeling, Mrs. Breckenridge was able to raise her vertical focus and produce clearer, louder, nonhoarse, and nonbreathy vocal productions. During these stimulability tasks, Mrs. Breckenridge reported that she was not feeling the vocal tension and aggravation that typically accompanied her speech and voice use. This indicated a good prognosis for improved voice quality with therapy.

Diagnosis and Recommendations

Mrs. Breckenridge was diagnosed with moderate dysphonia secondary to vocal nodules. She was stimulable for improved voice quality during trial therapy tasks. She was also counseled on improved vocal hygiene. Voice therapy two times per week for 8 weeks was recommended. Additional therapy will be considered at the end of the initial treatment period.

Autumn Noel, M.A., CCC/SLP
Speech-Language Pathologist

Sample Report 3

University Clinic
123 Main Street
Anytown, CA 99999
(xxx)555-1529 · clinic@email.com

Diagnostic Evaluation

Name: Christopher Elvi
Birthdate: 12-12-19xx
Age: 38
Address: 4574 Finch Ave
Home Phone: (xxx)555-0809
Email: celvi@email.com

Date: 5-16-20xx
Employment: not employed
Diagnosis: mixed dysarthria and apraxia, 784.59
City: Anytown, CA 99999
Cell Phone: (xxx) 555-1741
Clinic File No: 98765

History and Presenting Complaint

Christopher Elvi, a 38-year-old male, was evaluated at the University Clinic on May 7, 9, 14, and 16, 20xx. His attendant accompanied him. Mr. Elvi suffered a closed head injury as a result of a motor vehicle accident on July 4, 20xx. At the time of the evaluation, he was enrolled in his fifth semester of speech therapy at the University Clinic for remediation of mixed dysarthria and apraxia.

General Observations

Mr. Elvi was confined to a wheelchair. He had right hemiparesis and reported that before the accident, he was right-handed. He frequently used fingerspelling as a means of communication when speech was especially difficult. Fingerspelling was also used as a self-cuing strategy to elicit sound productions. He often corrected his own errors of articulation and language.

Mr. Elvi exhibited a significant amount of inappropriate laughter during the initial diagnostic session. He was able to control his outbursts and laugh more appropriately during the last two diagnostic sessions.

Orofacial Integrity

An orofacial evaluation revealed a mild drooping of the left lip corner at rest and while smiling. Mild groping movements were noted during lip puckering and mandibular depression. Lingual and labial strength were within normal limits bilaterally with slight nasal emission noted during evaluation of labial strength. The tongue deviated to the left upon protrusion. Degree of mandibular range, elevation, and depression were normal, with apparent jerky movements and temporomandibular joint noises noted during depression. It was also noted that Mr. Elvi maintained an open mouth rest posture.

Asymmetrical velopharyngeal movement was observed during the production of /ɑ/ with deviation of the velum to the left. Nasality was also noted. Nasal emission was present during blowing, cheek puffing, and the production of /ɑ/. A gag reflex was not elicited.

Diadochokinetic syllable rates were slow and labored with irregular timing. Mr. Elvi produced 25 productions of /pʌ/ in 8.44 seconds and 19 productions of /bʌ/ in 9.91 seconds. He was able to produce three repetitions of both /tʌ/ and /kʌ/ in 3 seconds; 1.5 repetitions of /dɪpədɪdɪpədɪdu/, 1.5 repetitions of /lɪpədɪlɪpədɪdu/, and

(continues)

1.25 repetitions of /gɪpədɪgɪpədɪgu/ were completed in 3-second intervals. Severe groping behavior was noted during complex diadochokinetic syllable tasks.

Hearing
A hearing screening revealed hearing to be within normal limits.

Voice
Mr. Elvi was required to sustain the vowel /i/ over four trials to assess velopharyngeal efficiency. He exhibited nasal emission and significant variation in his ability to maintain the original pitch on each trial. On the fourth trial, he was asked to lower his pitch and was able to control his pitch with more accuracy. However, there was still significant pitch variability. The average vowel duration was 8 seconds (range 5–9 seconds), which indicated velopharyngeal insufficiency as compared to the normal average of 15 seconds.

Mr. Elvi exhibited a high-pitched, strained-strangled voice quality with frequent nasal emission and hypernasality. Other features include poor control of pitch, pitchbreaks, and audible inhalation. Mr. Elvi exhibited monostress during conversational speech. With training, stimulability of appropriate stress during contrastive stress drills was good.

A fundamental frequency indicator was used to assess Mr. Elvi's habitual pitch and pitch range during conversational speech. Habitual pitch was determined to be 250 Hz, which is significantly higher than the adult-male average of 124 Hz. His pitch range was determined to be 150–300 Hz.

Control of loudness was poor. Mr. Elvi was required to produce selected vowels with continuous phonation for each vowel while changing from soft to loud. He exhibited poor control of loudness and pitch during this task. Vowels that appeared especially difficult were /i/ and /u/, while better control was exhibited during the productions of /ɑ/, /e/, and /æ/.

The s/z ratio of sustained productions also revealed deficits in respiration. Nasal emission was noted on all productions. Productions were inappropriately high in pitch and continued to rise following vocal onset. Audible inhalation was also noted. Mr. Elvi was able to maintain the production of /s/ for an average of 8.86 seconds, which is significantly below the average of 20–25 seconds. The s/z ratio was 1.0. Results indicated severe respiratory inefficiency and reduced vital capacity.

Repetitions of progressively more complex phrases revealed deficits in short-term memory, fluency, and respiration. Mr. Elvi was unable to repeat entire phrases of over seven syllables in length without cues provided by the clinician. He completed a maximum of three words per breath, and inhaled after almost every word in longer phrases (seven to nine syllables). It was also noted that he took frequent breaths in conversational speech, rarely completing more than three words following inhalation.

Fluency
Mr. Elvi exhibited frequent pauses, hesitations, and sound prolongations secondary to verbal apraxia and poor respiratory control.

Articulation
Mr. Elvi exhibited a severe articulation disorder characterized by sound omissions, substitutions, additions, and distortions. Intelligibility in conversational speech was approximately 92% with context known. Mr. Elvi exhibited severe groping behavior during all verbal speech tasks.

(continues)

The *Goldman–Fristoe Test of Articulation Sounds in Words Subtest* was administered to assess Mr. Elvi's consonant production in fixed positions. The following errors were noted:

Initial	Medial	Final
		-n
m/b	m/b	
	-k	
-p		b/p, -p
v/f	v/f	-f
	dist. g	-g
	-d	
	-t	n/t
ts/s, t/s, n/s, d/s		t/s, -s
dist. r	dist. r, -r	
-v		-v
dʒ/z	d/z	tʃ/z, s/z, -z
		tʃ/dʒ
	tʃ/ʃ	tʃ/ʃ
n/ð	d/ð	
b/bl		
k/kl		
l/sl		
tw/tr		

Additionally, these errors were noted in conversational speech:

Initial	Medial	Final
	m/p, b/p	
		+n
w/f, -f	v/f	
	k/g	
m/b	m/b	
	g/k	
dist. l		-l
n/d	n/d, -d	-d
n/t		-t
n/s, dʒ/s, -s	z/s, t/s	tʃ/s
w/r		dist. r
	dist. tʃ	
	t/z, -z	
f/θ		-θ
		dʒ
s/sl		
ɔ/ɑɪ	ɑ/ɑɪ	
	ɔ/ɑ	
	-ɔ	
		-ɪ

Mr. Elvi was stimulable for all sound errors. He exhibited notable difficulty contrasting between productions of voiced and voiceless phonemes when sounds were modeled in isolation by the clinician. He also exhibited difficulty initiating phonation when preceded by sounds without phonation (/h/ to /hɑ/). He was stimulable for articulation tasks with practice.

The *Apraxia Battery for Adults* was administered to assess volitional control of the limbs and the speech musculature during verbal and nonverbal speech tasks. Results indicated a mild-moderate limb apraxia, a mild-moderate oral apraxia, and a severe-profound verbal apraxia.

Language

Selected items of the *Western Aphasia Battery* were administered to assess auditory comprehension, repetition, naming, reading, writing, and apraxia. Mr. Elvi performed well on tasks of yes/no responses, word recognition, object naming, sentence completion, reading, matching written word to object, spelled word recognition, oral spelling, and volitional oral and limb movements. He exhibited mild difficulty with responsive speech, word fluency, sequential commands, and repetition. On the subtest requiring oral reading and performing of commands, Mr. Elvi did not read all of the commands orally although he performed all tasks with ease. It was assumed he did not read aloud because of his difficulty programming speech sounds. He responded that the task was "too hard" when the clinician asked why he did not read the commands orally. The writing subtest was the most difficult for Mr. Elvi. He struggled to write his first and last name and could not complete writing his address. He wrote with his left hand, which was not his dominant hand before the accident.

The *Boston Naming Test* was administered to assess Mr. Elvi's confrontational naming skills. The following results were obtained:

	Raw Score	% Correct
No cues provided:	36/60	60%
Stimulus cues provided:	0/8	0%
Phonemic cues provided:	16/22	73%
Total score:	44/60	73%

Scores indicated the presence of moderate anomia. The number of items that required phonemic cues was significant.

Mr. Elvi experienced much difficulty during oral reading of sentences. A conversational speech sample was taken to assess Mr. Elvi's mean length of response in connected speech. His mean length of response was 1.8 words or 2.2 morphemes.

Memory

Mr. Elvi exhibited short-term and long-term memory deficits as judged by informal assessment. He frequently could not recall what he had done or what he had eaten for a meal during the day of evaluation. He also had difficulty recalling words during conversational speech and would often give up because he was unable to remember the appropriate word to complete his message.

(continues)

Summary

Christopher Elvi was diagnosed with severe mixed dysarthria and concurrent verbal apraxia, severely reduced respiratory control, and moderate anomia. His speech and language were characterized by imprecise consonant productions, hypernasality, audible inhalations, monostress, a harsh and strained-strangled voice quality, and an abnormally high-pitched voice with severely reduced laryngeal control of pitch. He took frequent breaths and exhibited a significant amount of groping movements during volitional speech tasks. He also exhibited word retrieval difficulty during conversational speech and confrontational naming tasks.

Prognosis

Prognosis for improvement of speech and language abilities with treatment is good. He was stimulable for increased articulatory accuracy and for improved pitch and vocal stress during trial treatment tasks. Considering the extent of Mr. Elvi's neurological impairments and the length of time that has passed since onset, prognosis for complete recovery with treatment is poor.

Recommended Plan of Treatment

It was recommended that Mr. Elvi continue obtaining speech and language therapy. The following treatment goals and objectives for a 6-month treatment period were recommended:

1. Christopher Elvi will imitatively produce four-syllable phrases without laryngeal tension and with precise articulation with 90% accuracy.

Treatment will begin at the one-syllable word level. The clinician will model whispered productions of one-syllable words and Mr. Elvi will imitate. When he is able to precisely articulate a word in a whisper with no laryngeal tension, voicing will be added. Productions will be mildly breathy and soft in order to maintain the relaxed quality. The breathiness will be gradually eliminated when the client exhibits the ability to control laryngeal tension in single words with 90% accuracy.

Syllabic length of modeled phrases will systematically increase by one syllable when Mr. Elvi exhibits the ability to imitatively articulate phrases without laryngeal tension at each preceding level with 90% accuracy.

2. Christopher Elvi will imitatively produce four-syllable phrases in a single breath with 90% accuracy.

This goal will be addressed in conjunction with goal #1. Mr. Elvi will produce each phrase modeled by the clinician in a single breath. Syllabic complexity of each phrase will increase by one syllable when the 90% criterion is met at each preceding level.

3. Christopher Elvi will imitatively produce four-syllable phrases at a pitch level determined to be appropriate by the clinician with 90% accuracy.

This goal will also be addressed in conjunction with goal #1. The clinician will require the client to lower his pitch to an appropriate level. Each phrase that the client imitates must be produced at this predetermined pitch level. A criterion of 90% must be met at each level before proceeding to the next syllabic phrase level.

Appendix 4-A. continued

4. Christopher Elvi will recall five activities he participated in during each current day of treatment with 90% accuracy in the absence of auditory or visual cues.

At the onset of each treatment session, Mr. Elvi's attendant will provide a list of activities the client participated in during the day. The clinician will then ask the client questions about what he did during the day. Phonemic and visual cues will be provided as necessary to elicit the appropriate responses.

Madeleine Loud, M.A., CCC/SLP
Speech-Language Pathologist

Other samples:

Appendix 4-B.

Sample IFSP

Early Start Program Main Street Regional Center
Individualized Family Service Plan (IFSP)
for Children Birth to 3 Years

Child's Name: Janelle Martin Birthdate: 5/11/20xx Age: 23 months Gender: F

Parent(s)/Guardian(s): Doug & Wendy Martin Email: dwmartin@email.com

Address: 7544 Tiptoe Lane City: Anytown Zip Code: 99999

Home Phone: xxx-555-1964 Mobile/Work: xxx-555-7548

School District of Residence: Anytown Union School District

IFSP Type: ☒ Initial IFSP ☐ 6-month review ☐ Annual review ☐ Other review

IFSP Date: 4/30/xx

Service Coordinator

Service Coordinator: Lindsay Black Agency: Main Street Regional Center

Address: 794 Main Street, Anytown, CA 99999 Phone: xxx-555-2930

Assessment Team

Name	Title	Contact Phone
Lindsay Black	Service Coordinator	xxx-555-1298
Doug & Wendy Martin	Parents	xxx-555-7548
Brenda Khan	Speech-Language Pathologist	xxx-555-1785

Family's Priorities, Concerns, Resources:

Janelle was referred to the Early Start Program by her pediatrician due to concerns about her slow communicative development. She was accompanied to the clinic by both of her parents. The parents shared that she is not talking as much as other children her age and communicates mostly by gesturing. They reported that she seems to understand what is said to her.

The family lives in a remote region of the city. The mother is able to provide transportation to a clinic if in-home services are not available. Medical needs are provided through People's Healthcare.

Natural Environment

Janelle lives at home with both parents and her older brother, Timothy (age 5). The primary language spoken in the home is English. Both parents also speak fluent French. Her dad works full-time outside of the home. Her mom is home full-time. Janelle enjoys frequent visits to the library and the park with her mom and brother. Grandparents also live nearby and visit regularly.

Present Levels of Functioning

Janelle was evaluated on 4/21/xx at the Early Start clinic. Assessment information was gathered via observation, parent interview, record review, and administration of the *Battelle Developmental Inventory, 2nd edition* (BDI-2).

General Health

Janelle's overall health is good. Her mother reports no significant illnesses or injuries. Vision and hearing are normal. Janelle weighs 26 pounds and is 33 inches tall.

Gross and Fine Motor

Gross and fine motor skills are within normal expectations for her age. She is able to run without falling, kick a ball forward, point with her index finger, scribble linear and circular patterns, and use the pads of her fingers to grasp a pencil. She is able to turn book pages independently, place rings on a post, and stack three cubes. She requires some assistance to walk up and down stairs or fasten her clothing. Her parents report that she sometimes has a hard time stabbing her food with a fork.

Cognitive

Cognitive abilities are within normal expectations for her age. Janelle is an inquisitive little girl and seemed to enjoy exploring and manipulating test items during the assessment. She shows interest in age-appropriate books, points to pictures in a book, searches for missing objects, and attends to learning tasks for 5 minutes or more. She is able to match some colors, and can nest objects with demonstration. She seems to understand that she is the cause of certain events. She completes age-appropriate puzzles with assistance.

Communicative

Janelle's receptive language skills are similar to those of an 18-month-old. She identifies family members when named, associates words with common objects or actions, and responds to her name when called. She can identify her own eyes, nose, ears, mouth, and feet when prompted. She sometimes follows one-step verbal and/or gestural commands. She enjoys being read to, and will point to familiar items in a book when prompted.

Janelle's expressive language skills are similar to those of a 15-month-old. She primarily communicates using sounds and gestures. She says the names of family members (*mama*, *dad*) and calls her brother Timothy *Im*. She named (approximated) the following items from a picture book during the assessment: *dog, duck, ball, baby*. Her parents reported that she also says *no, bye-bye, some, beebee* (for blanket), and *hold-you* (spoken as a single word). She does not use two-word phrases with the exception of *bye-bye Mama*. During the assessment, Janelle babbled with long chains of unintelligible jargon-like speech. At times, she did not seem to be talking to anyone in the room.

Social/Emotional

Social and emotional abilities are within normal expectations for her age. She is somewhat shy around unfamiliar people, but warms up quickly. She looks to her mother regularly for reassurance in unfamiliar situations. She enjoys having stories read to her and allows others to participate in her activities. She responds positively to familiar adults, and is helpful with simple household tasks, such as putting dishes in the dishwasher or putting her diaper in the garbage. Other than her brother, she does not have a lot of interaction with other children. She sometimes plays cooperatively with him, but seems to prefer to play by herself. She does imitate his play behaviors.

(continues)

Adaptive/Self Help

Janelle's adaptive/self-help skills are within normal expectations for her age. She is able to feed herself bite-size pieces of food with her fingers and sometimes uses utensils. She can drink from a cup with minimal spilling. She removes her clothes by herself, but needs assistance to put them on. Janelle is not yet potty trained but is showing an emerging awareness of bowel movements, as she sometimes sneaks behind a chair to soil her diaper. She puts her toys away when asked and seems to demonstrate caution and avoid common dangers.

Summary

Janelle is a delightful little girl. At the beginning of the session, she was somewhat reserved, but quickly warmed up to the clinician and was cooperative with assessment tasks. Parents provided developmental information for behaviors not elicited in the clinic, and also reported that the behaviors observed were typical. Current findings are considered an accurate reflection of her skills at this time.

Outcomes Expected

Communication Outcome

Janelle will demonstrate age-appropriate receptive and expressive communication skills.

Criteria 1. Janelle will follow simple two-step commands in 4/5 opportunities.

Responsible agency: ☐ Parent(s) ☐ Service Coordinator

☒ Other: SLP

Criteria 2. Janelle will imitate simple CV, VC, CVC, and CVCV words during play and structured language activities in 4/5 opportunities.

Responsible agency: ☐ Parent(s) ☐ Service Coordinator

☒ Other: SLP

Criteria 3. Janelle will increase her functional vocabulary to 30 words and will use words for a variety of communicative purposes (e.g., request, label, protest, greet, call attention, comment).

Responsible agency: ☐ Parent(s) ☐ Service Coordinator

☒ Other: SLP

Early Intervention Services

Service	Specialist	Frequency & Duration	Natural Environment*	Start	End
1. Speech-Language Services	SLP	1 hr/week	Clinic	5/12/xx	10/30/xx

*Justification if not providing services in natural environment: No itinerant SLPs available that provide services in the family's neighborhood.

Funding
Parents were requested to pursue insurance within 40 days of this IFSP for the recommended services. Parents will provide the SC with a written copy of the insurance decision within 30 days of this IFSP. Early Start funding of services will be determined by the insurance coverage approved.

Follow-Up and/or Transition

Current IFSP to be reviewed in 6 months on 10/30/xx

On or before 02/11/xx (90 days before third birthday), a transition-planning meeting will take place to discuss transition of services to the local school agency.

Signatures and Parent Consent

IFSP Meeting Participants

Wendy Martin	4/30/xx
Parent/Guardian	Date
Doug Martin	4/30/xx
Parent/Guardian	Date
Lindsay Black	4/30/xx
Service Coordinator	Date
Brenda Khan	4/30/xx
Speech-Language Pathologist	Date

Consent
I/we have participated in the development of the IFSP for my/our child, Janelle Martin. I/we agree with the concerns and priorities presented in this document and, therefore, give permission to Early Start Program to implement and coordinate services.

Wendy Martin	4/30/xx
Signature of Parent/Guardian	Date
Doug Martin	4/30/xx
Signature of Parent/Guardian	Date

Orofacial Examination:

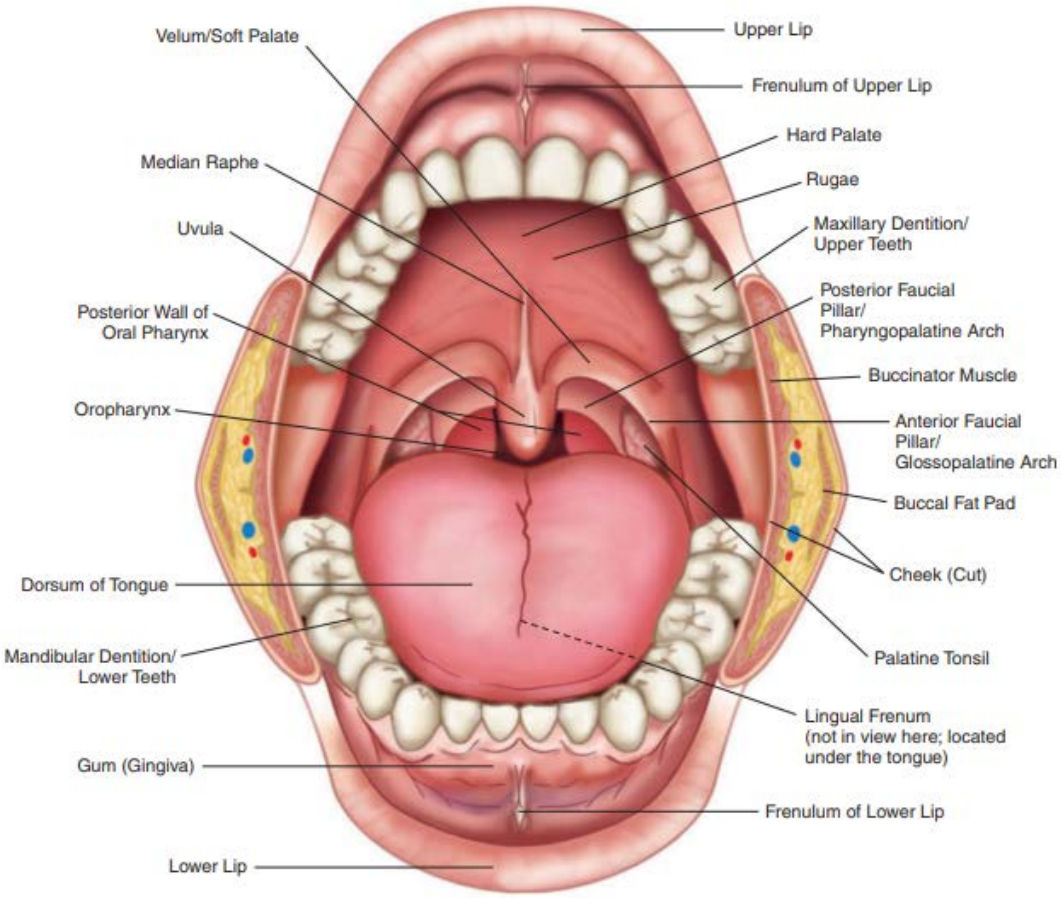
Orofacial Examination: Its purpose is to identify or rule **out structural or functional factors** that relate to a communicative disorder.

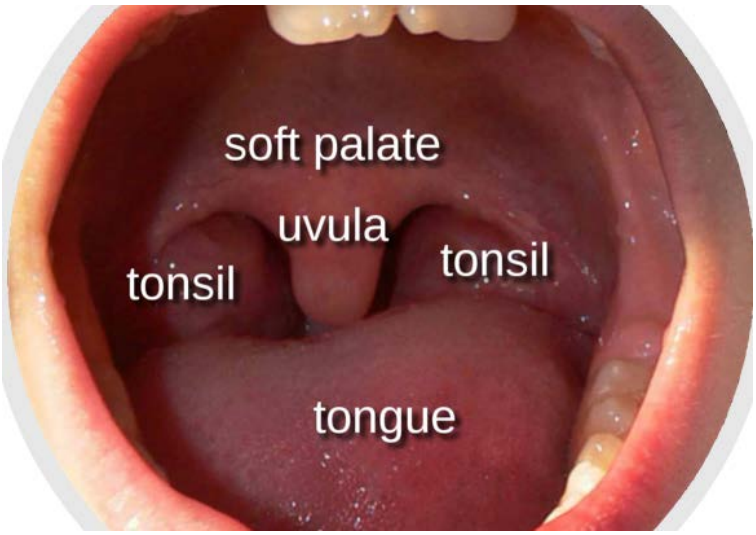
At minimum the clinician will need:

- Disposable gloves
- A stopwatch
- Flashlight
- Tongue depressor
- A bite block
- Cotton gauze
- An applicator stick
- A toothette
- Mirror

- When evaluating **young children**: [especially those who are reluctant to participate] →a sucker may be used in place of a tongue depressor or toothette.
- **Foods** such as peanut butter or applesauce can also be **strategically placed** in the **oral cavity** to help **assess lip** and **tongue movements**.

Oral cavity:





Interpreting the Orofacial Examination:

1. ***<u>Abnormal color of the tongue, palate, or pharynx</u>***:
    - A **grayish color** is normally associated with muscular paresis or paralysis.
    - A **bluish tint** may result from excessive vascularity or bleeding.
    - A **whitish color** present along the border of the hard and soft palate is a symptom of a submucosal cleft.
    - An **abnormally dark** or a **translucent color** on the hard palate may be an indication of a palatal fistula or a cleft.
    - **Dark spots** may indicate oral cancer.

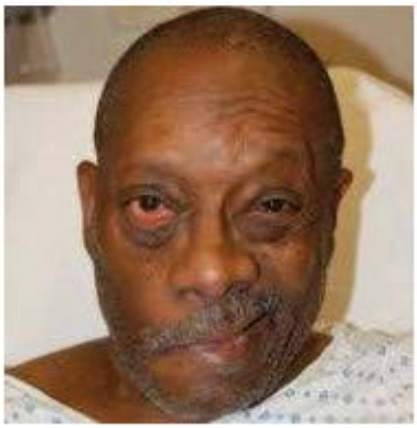
Unilateral tongue weakness

Sub-mucousal cleft

In general, it affects the production of speech sounds

2. ***Abnormal height or width of the palatal arch***:
   - The shape of the palatal arch may vary considerably from client to client.
     - If the arch is **especially wide** or **high**, the client may experience difficulties with palatal-lingual sounds.
     - An **abnormally low** or **narrow arch** in the presence of a large tongue may result in consonant distortions.

3. ***Asymmetry of the face or palate***:
   - This is often associated with **neurological impairment** or **muscle weakness**.



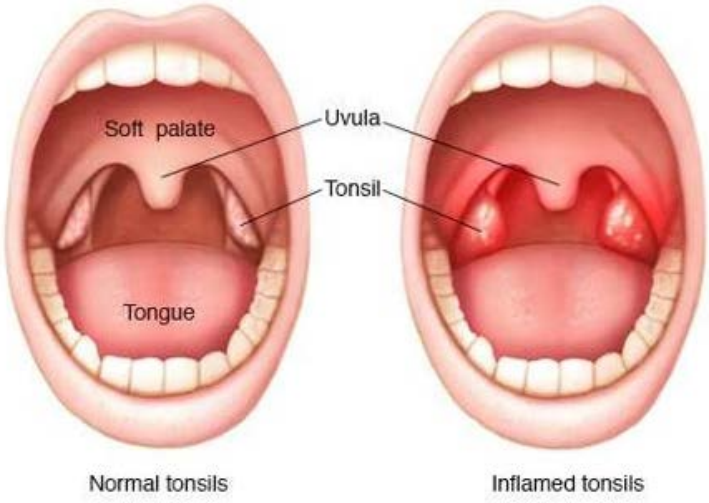
patient with Bell's Palsy affecting his right side

4. ***Deviation of the tongue or uvula to the left or right***:
   - This may indicate **neurological involvement**.
     - If so, the **tongue** may deviate to the **weaker side** because the **weaker half** of the tongue is unable to **match the extension of the stronger half**.
     - On phonation, the **uvula** may deviate to the **stronger side** as the palatal muscles on that strong side pull the uvula farther toward the velopharyngeal opening.
     - **Facial asymmetry** is also likely to be present.
     - The client may exhibit **concomitant aphasia**, **dysarthria**, or **both**.

Uvulae deviated to the right

Tongue deviated to the right

5. ***Enlarged tonsils***:
   - Many children have large tonsils with no adverse effect on speech production.
     - In some cases → **enlarged tonsils** interfere with **general health**, **normal resonance**, and **hearing acuity** *(if the eustachian tubes are blocked)*.
     - A **forward carriage** of the tongue may also persist, resulting in **abnormal articulation**.



6. ***Missing teeth***:
   - Depending on **which teeth are missing**, **articulation** may be impaired.
   - It is important to determine whether the missing teeth are the primary cause of, or a contributor to, the communicative disorder.
   - In most cases, especially in children, missing teeth do not seriously affect articulation

7. ***Mouth breathing***:
   - The client may have a **restricted passageway** to the **nasal cavity**.
   - If this is a persistent problem and the client also exhibits **hyponasal (denasal) speech**, a referral to a physician is warranted.
   - **Mouth breathing** may also be associated with **anterior posturing** of the **tongue at rest**.

8. ***Poor intraoral pressure***:
   - **Poor maintenance of air** in the cheeks is a sign of **labial weakness**.
   - It is also a sign of **velopharyngeal inadequacy**—more specifically, **velopharyngeal insufficiency (a structural problem)** or **velopharyngeal incompetence** (a functional problem).
   - Check for **nasal emission** or **air escaping** from the lips.
   - This client may also have **dysarthria**, **hypernasality**, or both.

9. ***Short lingual frenum***:
   - Also known as **tongue-tied**.
     - This may result in an articulation disorder.
     - If the client is **unable** to place the tongue against the **alveolar ridge** or **the teeth** to produce sounds such as /t/, /d/, /n/, /l/, /tS/, and /dZ/, the frenum may need to be clipped by a physician.

10. ***Weak, asymmetrical, or absent gag reflex***:
    - This may indicate **muscular weakness** in the **velopharyngeal area**.
    - **Neurological impairment** may be present.
    - It is important to note, however, that conclusions cannot be made without considering other factors → *Some people with normal muscular integrity do not have a gag reflex*

11. ***Weakness of the lips, tongue, or jaw***:
    - This is common among clients with **neurological impairments**.
      - **Aphasia**, **dysarthria**, or **both**, may be present.

Dysarthria occurs **when the muscles you use for speech are weak or you have difficulty controlling them**. Dysarthria often causes slurred or slow speech that can be difficult to understand.

Aphasia is **a language disorder caused by damage in a specific area of the brain that controls language expression and comprehension**. Aphasia leaves a person unable to communicate effectively with others. Many people have aphasia as a result of stroke.

Assessing Diadochokinetic Syllable Rate:

Diadochokinetic (DDK) syllable rate is the measure of a client's ability to make rapidly alternating speech movements.

- → It may also be called alternating or **sequential motion rate**.
- → DDK rate provides information about a **client's motor** and **speech-planning ability**

DDK rate is measured in one of two ways:

1. Counting **the syllables** produced within a **predetermined number of seconds**.
2. Measuring **the seconds** it takes to produce a **predetermined number of syllables**.

Assessing it:

Instruct	Instruct the client to repeat the target syllable (e.g., /pø/, /tø/, /kø/) as quickly as possible until told to stop.
Model	Model the sequence and allow the client to practice to be sure the instruction is understood.
Go and start	Say go and start the stopwatch.
Stop and stop	Say stop and stop the stopwatch after 20 repetitions.
Redo	Redo the sequence if the client stops or slows down intentionally before the task is completed.
Evaluate	After assessing each syllable individually, evaluate the client for 10 repetitions of/pøtøkø/.
Record	Record findings on the worksheet.

Form 5-2.

Diadochokinetic Syllable Rates Worksheet

Name: _____ Age: _____ Date: _____

Examiner's Name: _____

Instructions: Time the number of seconds it takes your client to complete each task the prescribed number of times. The average number of seconds for children from 6 to 13 years of age is reported on the right-hand side of the table.

The standard deviation (SD) from the mean is also represented. Subtract the SD from the norm to determine each SD interval. For example, using the /pʌ/ norm with a 6-year-old, 3.8 (4.8–1.0) is one SD, 2.8 (4.8–2.0) is two SDs, 2.3 (4.8–2.5) is two-and-a-half SDs, etc. Therefore, a 6-year-old child who needed 2.6 seconds to complete the /pʌ/ sequence would be two SDs below the mean.

			Norms in seconds for diadochokinetic syllable rates							
			Age							
Task	**Repetitions**	**Seconds**	6	7	8	9	10	11	12	13
pʌ	20	_____	4.8	4.8	4.2	4.0	3.7	3.6	3.4	3.3
tʌ	20	_____	4.9	4.9	4.4	4.1	3.8	3.6	3.5	3.3
kʌ	20	_____	5.5	5.3	4.8	4.6	4.3	4.0	3.9	3.7
		Standard Deviation:	1.0	1.0	0.7	0.7	0.6	0.6	0.6	0.6
pʌtəkə	10	_____	10.3	10.0	8.3	7.7	7.1	6.5	6.4	5.7
		Standard Deviation:	2.8	2.8	2.0	2.0	1.5	1.5	1.5	1.5

Speech and language sampling:

Speech-language samples are invaluable in the assessment of a client's **communicative abilities** and **disorders**.

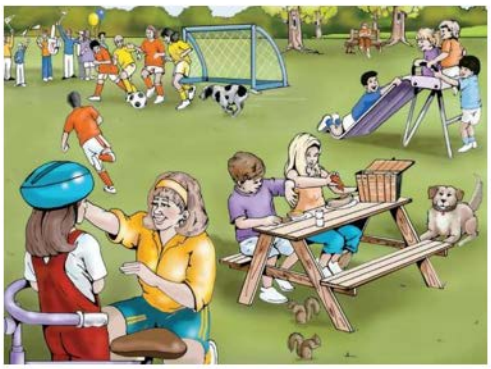
→ They can be the basis for determining whether a problem exists → if so, identifying the client's specific deficiencies and needs.

Speech samples are used for:

- **Identifying sound errors** from a **speech sample**
- Evaluating **rate of speech**
- **Determining intelligibility**
- **Comparison** of **sound errors** from an **articulation test** and **connected speech**
- **Language sampling** and **analysis**
- Determining the **mean length of utterance**
- **Assessment of semantic skills**
- **Determining** the **type-token ratio**
- **Assessment of syntactic skills**
- **Assessment of morphologic skills**
- **Examining the voice**
- Identifying **dysarthria**
- Identifying **apraxia**

Conversation Starters for **Eliciting a Speech—Language** Sample:

- **Sample stimulus questions and statements**
  - → If the client is verbal and the clinician uses open-ended stimuli to elicit responses, (e.g., "tell me about . . ."), an adequate sample may be collected during the information-getting interview.
  - → If this does not occur, however, ask specific questions about the client's interests (e.g., hobbies, occupation, sports, family, current events) to encourage lengthier conversation.
- **Pictures**
  - → They provide a known context, which may be helpful when assessing clients with significantly impaired intelligibility.
  - → It is important to use pictures that illustrate a variety of activities.
  - → Pictures that show little action, depict few things to talk about, or elicit naming-only responses are of little use
- **Narratives/stories**
  - → One method of assessing narrative production is by telling a story and having the client tell it back.
  - → After reading each story, encourage the client to retell it with as much detail as possible.



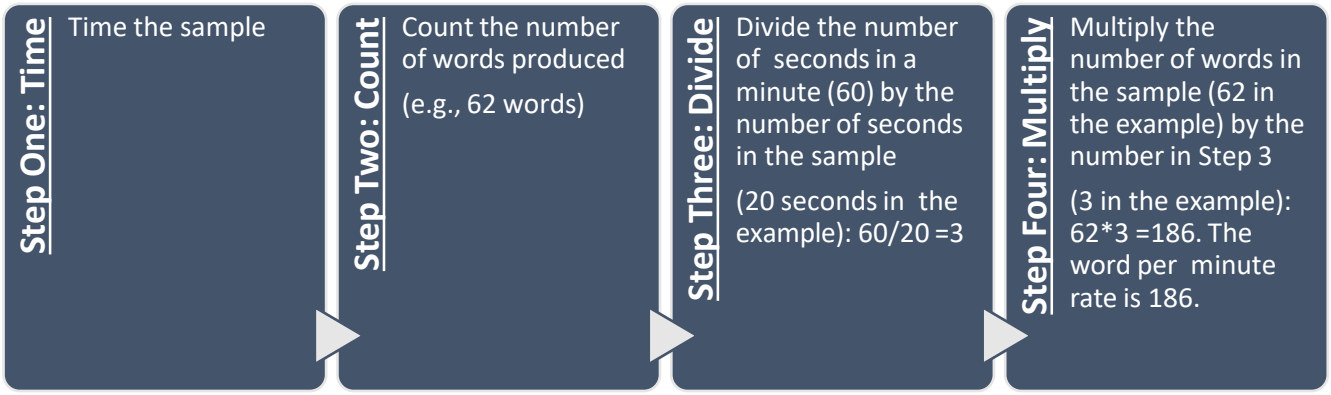
Reading passages:

Information obtained during **oral reading** is valuable for making many assessment decisions because it allows the clinician to observe the **client's articulation**, **voice**, **fluency**, and **reading abilities**.

Evaluation rate of speech:

A client's **speech rate** can directly affect **articulation**, **intelligibility**, **voice production**, and **fluency**.

Evaluating Rate of Speech:



Normal speech rates:

	Average	Range
Reading – *Adult*	x	160 – 180 wpm (word) 220 – 302 spm (syllable)
Spontaneous Speech – *Adult*	270 wpm	220 – 410 wpm (word) 114 – 247 spm (syllable)
Spontaneous speech – *first grader*	125 wpm	x
Spontaneous speech – *fifth grader*	142 wpm	x

Determining intelligibility:

What can **negatively influence intelligibility**?

- The **number of sound errors**. Generally, the **greater the number of sound errors**, the **poorer the intelligibility**.
- The **type of sound errors**.
  - → *For example: omissions and additions sometimes result in poorer intelligibility than substitutions or distortions.*
- **Inconsistency of errors**.
- **Vowel errors**.
- The **rate of speech**, especially if it is **excessively slow** or **fast**.
- Atypical **prosodic characteristic** of **speech**, such as **abnormal intonation** or **stress**.
- The **length** and **linguistic complexity** of the **words** and **utterances** used.
- Insufficient vocal intensity, **dysphonia**, **hypernasality**, or **hyponasality**.
- **Disfluencies**, particularly **severe disfluencies** that disrupt the context.
- The **lack of gestures** or **other paralinguistic cues** that assist understanding.
- The **testing environment** (such as at home versus in the clinic).
- The **client's anxiety** about the testing situation.
- The **client's lack of familiarity** with the stimulus materials.
- The **client's level of fatigue**.
  - → *Fatigue particularly affects very young children, elderly clients, and clients with certain neurological disorders*.
- The **clinician's ability** to understand "less intelligible" speech.

When measuring intelligibility, clinicians are recommended to:

- Use a **high-quality recording device**
- **Avoid stimulus items** that tend to **elicit play rather than talk**
- Use **open-ended questions**
- Consider reporting **intelligibility in ranges** (e.g., 65–75%), particularly when intelligibility varies.
- **Compare intelligibility** on **word-by-word** and **utterance-by-utterance** bases
  - → For some clients, the results will be very similar.
  - → For others, they may be considerably different.
  - → *For example, a client whose loudness and articulation deteriorate in longer utterances may have many intelligible words, particularly at the beginning of individual utterances, but the end of the child's utterances may be unintelligible*.

Calculating intelligibility:

Example:

Utterances	# Intelligible Words	Total Words	# Intelligible Utterances	Total Utterances
1. hi went hom	3	3	1	1
2. ɑr ju— tu go	4	5	0	1
3. — — θɪn	1	3	0	1
4. pwiz pwe wɪf mi	4	4	1	1
5. ɑɪ wɑnt tu go hom	5	5	1	1
Totals	**17**	**20**	**3**	**5**

$$\frac{\text{intelligible words}}{\text{total words:}} \quad \frac{17}{20} = 85\% \qquad \frac{\text{intelligible utterances:}}{\text{total utterances:}} \quad \frac{3}{5} = 60\%$$

Syllable by Syllable Stimulus Phrases:

Syllable-by-syllable phrases are useful for assessing many disorders.

→ *Articulation, rate, prosody, inflection, and intonation*

The following are just a few examples of clinical questions that can be answered by using syllable-by-syllable phrases:

- *Can the **hyponasal (denasal)** client maintain appropriate nasal resonance across increasingly longer phrases containing nasal sounds?*
- *Can the **hypernasal client** produce the nonnasal phrases without nasality?*
- *What **speech rate is optimal** for the client to be able to articulate all sounds correctly in phrases of increasing length?*
- *Are there **specific syllable lengths** at which the client's speech begins to **deteriorate**?*
- *Are there **specific syllable lengths** at which the client's articulation becomes **less intelligible**?*
- *Can **fluency** be maintained in **increasingly longer phrases**?*
- *Can a **desired voice quality** (e.g., nonhoarse) be maintained in **increasingly longer phrases**?]*

Phrase list:

TWO-SYLLABLE PHRASES	
With Nasals	*Without Nasals*
at noon	Back up.
brown car	big boy
Come in.	blue sky
Down, please.	dog house
front door	hot dog
I'm fine.	Keep out.
in here	Pull hard.
my jam	Push it.
Show me.	red car
Thank you.	too slow

THREE-SYLLABLE PHRASES	
With Nasals	*Without Nasals*
Good morning.	apple pie
hot and cold	catch the bus
jumping rope	far to go
make it up	How are you?
moon and stars	Hurry up.
more and more	Laugh loudly.
Please call me.	Leave the house.
run and jump	red roses
shoes and socks	see the cat
yes or no	slept all day

FOUR-SYLLABLE PHRASES	
With Nasals	*Without Nasals*
bacon and eggs	after he left
Do it right now.	Do it this way.
Do it for him.	He has a coat.
It's a fine day.	Here is the key.
Leave him alone.	I like to read.
My hands are cold.	I told you so.
Open it up.	Keep to the left.
salt and pepper	Show her the way.
table and chairs	Tell her okay.
The meal was fine.	The bus was full.

FIVE-SYLLABLE PHRASES

With Nasals	*Without Nasals*
a piece of candy	a pair of scissors
a long vacation	Beware of the dog.
He wants the money.	Did you hit the ball?
Look out the window.	He would if he could.
My mother said no.	How did you do it?
Please open the door.	Let's go to the park.
She is very nice.	She is very shy.
The dogs are barking.	The car was dirty.
The weather is fine.	The weather is cold.
We cut down the tree.	We sat by the trees.

SIX-SYLLABLE PHRASES

With Nasals	*Without Nasals*
a nickel and a dime	Are you ready to go?
Give them each a muffin.	Do you have the address?
How much more will it cost?	Go to the library.
I haven't heard from them.	He rushed to catch the bus.
just beyond the corner	He is very happy.
Leave the window open.	I have lost the car keys.
Put everything away.	The potatoes were cold.
Shut the door behind you.	What size shoe do you wear?
The farmers needed rain.	Where did you put her coat?
We can go after lunch.	Will you keep it secret?

SEVEN-SYLLABLE PHRASES

With Nasals	*Without Nasals*
Come and see us when you can.	Did you read today's paper?
Come inside and close the door.	He has a good idea.
He wants more cake and ice cream.	I thought it would start at four.
I don't know what happened here.	I would like a cup of tea.
I wonder why she said that.	Put it back where you got it.
Is it time for the movie?	She is a very good cook.
Please knock before you enter.	They like to sit at the park.
She is not very happy.	Why did they go to the show?
What is it you want to know?	You did the best you could do.
When does the next show begin?	You should tell her about it.

Charting:

Charting is useful for both **diagnostic** and **treatment** activities.

- → It provides a **method of scoring** a **client's responses** and **objectively identifying** the **client's communicative abilities** and **deficits**.
- → Desirable behaviors: *(e.g., correct sound productions, fluent speech)*
- → Undesirable behaviors: *(e.g., misarticulations, throat clearing)*
- → This information provides an **assessment baseline** for **diagnostic decisions**, and **demonstrates progress** in **treatment**.

Both desirable and undesirable can be charted

There are several ways to chart behaviors, including:

1. ***Note each time a preselected behavior is exhibited.***
   - → *For example, record each instance of throat clearing, each associated motor behavior, every interjection (e.g., "OK" or "uh"), and so forth.*
   - → In this method, opposite behaviors (e.g., the absence of throat clearing) are not recorded.
   - → The result is a count of the number of times a specified behavior occurred within the time interval sampled.
2. ***Note each instance of both correct and incorrect behaviors.***
   - → Use a check (✓) or plus (1) for each desirable production, and a zero (0) or a minus (2) for every undesirable production.
   - → *For example, after 10 productions of a given sound, perhaps 7 were correct and 3 were incorrect. This yields a percentage (70% in this case) that can be compared with previous or future results.*
3. ***Note behaviors according to one of several preselected criteria.***
   - → *For example, when charting articulation, a specified sound may be omitted (O), approximated (A), or produced correctly (C).*
   - → Percentages can then be determined for each type of response.

Chapter Six: Assessment of Speech Sound Disorders

Assessment:

Normal speech production requires a **series** of **coordinated actions**.

- Requires exact:
  - Placement
  - Sequencing
  - Timing
  - Direction
  - force of the articulator
- This occurs *simultaneously* with precise:
  - Airstream alteration
  - Initiation or halting of phonation
  - Velopharyngeal action

When these complex processes are disrupted, Articulation errors occur

Articulatory problems result from two main **etiologies**:

1) **Organic** etiologies → a known physical cause
   - *Example: organically based articulatory or phonological disorders are related to:*
     - ✓ *Hearing loss*
     - ✓ *cleft lip or palate*
     - ✓ *cerebral palsy*
     - ✓ *ankyloglossia (tongue-tie)*
     - ✓ *apraxia*
     - ✓ *dysarthria*
2) **Functional** etiologies → no known physical cause issues
   - They try to find causes in Oral facial examination but in many cases the cause remains unknown

The **primary purposes** of an assessment of articulation and phonological processes include:

1) **Describing** the **articulatory or phonological development** and status of the client
2) Determining whether the **individual's speech sufficiently deviates** from **normal expectations** to **warrant concern** or **intervention**
3) **Identifying factors** that relate to the **presence** or **maintenance** of the speech disorder
4) Determining the **direction of treatment**
5) Making **prognostic judgments about change** with and without intervention
6) **Monitoring changes** in **articulatory** or **phonological abilities** and **performance across time**

Several **important components** of a complete evaluation of **articulation** and **phonological** processes:

➢ History of the Client

- **Procedures**
  - ✓ *Written Case History*
  - ✓ *Information-Gathering Interview*
  - ✓ *Information from Other Professionals*
- **Contributing Factors**
  - ✓ *Hearing Impairment*
  - ✓ *Medical or Neurological Factors*
  - ✓ *Dental Problems*
  - ✓ *Maturation and Motor Development*
  - ✓ *Intelligence, Sex, Birth Order, Motivation and Concern, Dialect*

➢ Assessment of Speech Sound Disorders

- **Procedures**
  - ✓ *Screening*
  - ✓ *Formal and Informal Tests*
  - ✓ *Speech Sampling*
  - ✓ *Stimulability of Errors*
- **Analysis**
  - ✓ *Number of Errors*
  - ✓ *Error Types (substitutions, omissions, distortions, additions)*
  - ✓ *Form of Errors (distinctive features, phonological processes)*
  - ✓ *Consistency of Errors*
  - ✓ *Intelligibility*
  - ✓ *Rate of Speech*
  - ✓ *Prosody*

➢ Orofacial Examination

➢ Hearing Assessment

➢ Language Assessment

➢ Determining the Diagnosis

➢ Providing Information (written report, interview, etc.)

Phonetic symbols of the English and Arabic Language:

CONSONANTS				VOWELS					
VOICED		UNVOICED				R-CONTROLLED		DIPHTHONGS	
/b/	as in big	/p/	as in pin	/i/	as in meet	/ɝ/	as in sure	/aɪ/	as in bye
/d/	as in dog	/t/	as in tie	/ɪ/	as in it		(stressed)	/eɪ/	as in crayon
/g/	as in go	/k/	as in cat	/e/	as in eight	/ɚ/	as in mother	/aʊ/	as in out
/v/	as in vase	/f/	as in far	/ɛ/	as in met		(unstressed)	/ɔɪ/	as in boy
/z/	as in zoo	/s/	as in sit	/æ/	as in ask	/ɪɚ/	as in ear	/oʊ/	as in mode
/ð/	as in this	/θ/	as in think	/ə/	as in control	/ɛɚ/	as in hair		
/ʒ/	as in measure	/ʃ/	as in shake		(unstressed)	/ɔɚ/	as in or		
/dʒ/	as in jump	/tʃ/	as in chip	/ʌ/	as in country	/ɑɚ/	as in car		
/m/	as in mop	/h/	as in hi		(stressed)				
/n/	as in no			/u/	as in too				
/ŋ/	as in sing			/ʊ/	as in book				
/l/	as in light			/o/	as in go				
/r/	as in rake			/ɔ/	as in dog				
/j/	as in yes			/ɑ/	as in saw				
/w/	as in wet								

IPA symbols for Arabic

IPA symbols for Arabic phonemes

Arabic transcript	IPA	Arabic transcript	IPA	Arabic transcript	IPA	Arabic transcript	IPA
ء	/ʔ/	د	/d/	ض	/dˤ/	ق	/q/
ب	/b/	ذ	/ð/	ط	/tˤ/	ل	/l/
ت	/t/	ر	/r/	ظ	/ðˤ/	م	/m/
ث	/θ/	ز	/z/	ع	/ʕ/	ن	/n/
ج	/ʒ/	س	/s/	غ	/ɣ/	و	/w/
ح	/ħ/	ش	/ʃ/	ف	/f/	ه	/h/
خ	/x/	ص	/sˤ/	ك	/k/	ي	/j/

Screening:

The **purpose** of screening:

- quickly **identify** those people who **communicate within normal limits** and those who **may have a communicative disorder**

A **screening** is <u>not</u> an **in-depth assessment** and should <u>not</u> take **more than a few minutes**.

- **Screenings** most *commonly* occur in the **schools** → where **large numbers** of children in the **early grades** are screened for communicative disorders.

- An **articulation** or **phonological** processes screening test does not have to be **formal**

→ Many clinicians listen to the person's speech and have him or her perform simple tasks, such as:

  - Counting
  - Reciting the days of the week
  - Reading
  - Naming objects or colors, etc.

Formal Tests:

Formal tests assess sounds in the **initial**, **medial**, and **final positions** allowing the clinician to identify the **number** and **types of errors**

- *Example: the /l/ in → **l**ight / ba**ll**oon / ba**ll***

Articulation tests are used to identify a client's **articulation errors** in a relatively **quick** and **systematic fashion.**

There are **drawbacks** to these tests:

- Not **all phonetic contexts** are examined (limited words) →Even if the client produces the sound correctly, there may be other contexts and words in which the client cannot produce the target sound correctly
- We are only looking at **word-level production** → sound productions in single words may differ from those in spontaneous speech
- **Only consonants** are tested → accurately produced vowels are also important for well-developed speech
- Do not tell us whether an **articulatory error** is **developmentally appropriate** or **not** →These tests provide only an inventory of the sounds sampled
- **Not reliable** to evaluate clients with **variable disorders** → example: Many clients with CAS [childhood Apraxia of speech] produce a sound or word correctly one time and incorrectly the next

Language (dialect)	Name of test (or *word list*)	Reference	Access/ purchasing information
Arabic – Egyptian (العربيّة)	Mansoura Arabic Articulation Test (MAAT)	Abou-Elsaad, T., Baz, H. & El-Banna, M. (2009). Developing an articulation test for Arabic-speaking school-age children. *Folia Phoniatrica et Logopaedica, 61*(5), 275–282.	Journal article
Arabic – Kuwaiti (العربيّة)	Kuwaiti Arabic Phonology Test	Ayyad, H., Bernhardt, B. M., & Stemberger, J. P. (2012). *Kuwaiti Arabic Phonology Test*. Kuwait University, Kuwait; University of British Columbia, Vancouver, Canada.	Free download*
Arabic – Kuwaiti (العربيّة)	Kuwaiti Arabic single word list	Ayyad, H. S., Bernhardt, B. M., & Stemberger, J. P. (2016, in press). Kuwaiti Arabic: acquisition of singleton consonants. *International Journal of Language and Communication Disorders*, 10.1111/1460-6984.12229	Journal article
Arabic – Jordanian (العربيّة)	Amayreh Articulation Test	Amayreh, M. M. & Dyson, A.T. (1998). The acquisition of Arabic consonants. *Journal of Speech, Language, and Hearing Research 41*, 642–653.	Journal article
Arabic – Jordanian (العربيّة)	Amayreh Articulation Test: Modified	Hamdan, J. M. & Amayreh, M. M. (2007). Consonant profile of Arabic-speaking school-age children in Jordan. *Folia Phoniatrica et Logopaedica, 59*(2), 55–64.	Journal article

Identifying sound errors from a speech sample:

The speech sample is *especially important* for accurately **diagnosing disorders** of **speech sound production**.

After obtaining **one** or **more representative samples** of the client's speech→ analyze the sample with a focus on the following behaviors:

- *Number of errors*
- *Error types*
- *Consistency of errors between the speech sample and the articulation test, within the*
- *same speech sample, and between different speech samples*
- *Correctly produced sounds*
- *Intelligibility*
- *Speech rate*
- *Prosody*

Initial, medial, and final sound positions are not as definitive in connected speech

❖ To complete a **thorough diagnostic evaluation**, the clinician will need to **compare errors** made during the **articulation test** to those **errors made during connected speech**

Stimulability:

Stimulability refers to a **client's ability** to **produce a correct** (or improved) **production** of an **erred (mistaken) sound**.

- ➢ The client attempts to **imitate** the **clinician's correct production** → this is often after receiving specific instructions regarding the **articulatory placement** or **manner** of sound production
- ➢ The assessment of stimulability provides important **prognostic information**.
- ➢ If the clinician **is able to stimulate** a target behavior at the **sound level** or **word level** during the diagnostic session → it is **more likely** that the **desired behavior** will be **trainable at more complex levels**.
- ➢ Those behaviors that are <u>most easily stimulated</u> provide **excellent starting points in therapy** because they often lead to **treatment success quicker** than other **less stimulable behaviors**

❖ clinicians tend to ***listen*** to speech more than ***watch*** speech → but seeing an error can help **identify** what **needs to change** in order to produce a better sound

Developmental Norms for Phonemes:

Clinicians often use **normative data** to determine whether or not a child is developing within **normal expectations**

The limitations of developmental norms:

- A **norm** is only an **average age** at which a **behavior occurs**
- **True norms** are collected from and apply to a **normal, randomly selected sample**
- These exact **representative samples** *rarely* exist in the real world.

- **Different norms** are *rarely* in **agreement** with each other → The **differences** are caused by **many factors**, including *when the study was conducted*, *where the study was conducted*, *the size and characteristics of the sample*, *the research design followed*, and the *mastery criteria used*

Developmental norms for Arabic phonemes:

Table 3. Comparison between acquisition ages of consonants in Arabic (acquisition = 75% correct in all positions tested) and in three studies of English.

Sound	Arabic		English		
	Standard	Acceptable	Smit et al., 1990[1]	Prather et al., 1975[2]	Templin, 1957
/b/	3:0–3:4	3:0–3:4	≤3:0, ≤3:0	2:8	4:0
/t/	2:6–2:10	2:6–2:10	≤3:0, ≤3:0	2:8	6:0
/d/	3:0–3:4	3:0–3:4	≤3:0, ≤3:0	2:4	4:0
/k/	2:6–2:10	2:6–2:10	≤3:0, ≤3:0	2:4	4:0
/f/	2:6–2:10	2:6–2:10	≤3:0, 3:6	2:4	4:0
/θ/	>6:0–6:4	5:0–5:4	5:6, 6:0	>4:0	6:0
/ð/	>6:0–6:4	>6:0–6:4	4:0, 5:6	4:0	6:0
/s/	5:0–5:4	5:0–5:4	3:0, 5:0	3:0	4:6
/z/	>6:0–6:4	>6:0–6:4	5:0, 6:0	>4:0	7:0
/ʃ/	5:0–5:4	5:0–5:4	4:0, 5:0	3:8	4:6
/dʒ/	>6:0–6:4	4:0–4:4	4:6, 4:0	>4:0	7:0
/h/	5:0–5:4	5:0–5:4	≤3:0, ≤3:0	2:0	≤3:0
/m/	≤2:0–2:4	≤2:0–2:4	≤3:0, ≤3:0	2:0	≤3:0
/n/	2:6–2:10	2:6–2:10	≤3:0, ≤3:0	2:0	≤3:0
/l/	3:6–3:10	3:6–3:10	4:6, 6:0	3:4	6:0
/r/	5:6–5:10	5:6–5:10	6:0, 5:6	3:4	4:0
/w/	2:6–2:10	2:6–2:10	≤3:0, ≤3:0	2:8	≤3:0
/j/	6:0–6:4	2:6–2:10	3:6, 3:6	2:4	3:6

[1]Ages of girls, then boys
[2]Sounds tested in only two positions with percentages for two positions averaged

Phonological Processes:

Phonological processes describe what children do in the **normal developmental process** of speech to simplify **standard adult productions**.

- Phonological processes apply to larger segments that include individual sounds
- The **advantage** of using a **phonological processes approach** when analyzing articulation is that:

→ the clinician can **identify error patterns** and then **target those patterns** to remediate (fix) more than one sound at a time

→ *For example: if a child uses final consonant deletion pattern → the clinician may choose to **target final consonants in general** rather than focus on only a few sounds in the final position*

Process	description	Example
Alveolarization	Alveolar sounds phoneme replace labial or linguadental phonemes	/don/ for bone
Assimilation	Target phoneme is influenced by and becomes more like a surrounding phoneme	/gug/ for dog
Backing	Substitution of a more posteriorly produced phoneme for an anteriorly produced phoneme	/kAp/ for *top*
Cluster Reduction	Reduction of a cluster to singleton	/sip/ for *sleep*
Coalescence	Substitution of a single phoneme that is different from two adjacent target phonemes yet takes on features of the target	/tufe/ for Tuesday
Deaffriction	Substitution of a fricative for an affricate phoneme	/Shiz/ for cheese
Final Consonant Deletion	Deleting final consonant	/ca/ for cat
Denasalization	Substitution of a **homorganic stop** (similar place of articulation) for a nasal phoneme	/do/ for no
Depalatalization	Substitution of an alveolar fricative or affricate for a palatal fricative or affricate	/dʒu/ for cue
Diminutization	Addition of /i/ or consonant + /i/	/mɑimi/ for my
Doubling	Doubling	/gogo/ for go
Epenthesis	Insertion of a new phoneme	/sθop/ for soap
Fronting	Substitution of a more anteriorly produced phoneme	/su/ for shoe

Process	description	Example
Gliding	Substitution of a glide for a liquid	/pwey/ for play
Initial Consonant Deletion	Deletion of the initial singleton consonant	/ul/ for pool
Labialization	Substitution of a labial phoneme for a phoneme produced with the tip of the tongue	/bog/ for dog
Metathesis	Transposition of two phonemes	/likstip/ for lipstick
Reduplication	Repetition of a complete or incomplete syllable	/wɑwɑ/ for water
Stopping	Substitution of a stop for a fricative or affricate	/top/ for soap
Stridency deletion	Omission of a strident or the substitution of a nonstrident consonant	/op/ for soap
Unstressed Syllable Deletion	Deletion of an unstressed syllable	/gedi/ for spaghetti
Voicing and Devoicing	Alteration in voicing influenced by a surrounding phoneme	/beg/ for bake
Vocalization	Substitution of a vowel for a liquid phoneme in the final position	/pipo/ for people

Norms for Phonological processes:

AGE OUTGROWN	PHONOLOGICAL PROCESS
Gone by age 3	Denasalization
	Doubling
	Assimilation
	Diminutization
	Reduplication
	Prevocalic voicing
	Final consonant devoicing
	Stopping /f/ and /s/
Gone by age 4	Final consonant deletion
	Fronting
	Consonant assimilation
	Unstressed syllable deletion
	Cluster reduction
	Deaffrication
	Stopping /v/ and /z/
Gone by age 5	Alveolarization
	Depalatalization
	Stopping /ʃ/, /tʃ/, /dʒ/, /θ/, and /ð/**
Gone by age 6	Gliding
	Labialization
Gone by age 8	Epenthesis

Childhood Apraxia of Speech:

Childhood apraxia of speech (CAS) is a motor speech disorder.

- A child with **CAS** has difficulty:
  - *sequencing sounds*
  - *syllables*
  - *words*

  There is **no** muscle weakness, paralysis, or other physical limitation
- **etiology**: is usually unknown → although in some cases it is **secondary** to a **genetic disorder** or **acquired from a stroke or brain injury**
- Differential diagnosis is **challenging** because behaviors associated with CAS are also associated with **other communicative disorders** → *dysarthria, speech delay, fluency disorder, expressive and receptive language impairment, literacy disorder, and phonological impairment*

Three features of CAS:

1) **Inconsistent errors** on **consonants** and **vowels** in **repeated productions** of syllables or words
2) **Lengthened** and **disrupted co-articulatory transitions** between sounds and syllables
3) **Inappropriate prosody**, especially in the realization of lexical or phrasal stress

Clinicians should focus on differentiating CAS from other similar disorders during an assessment.

- They evaluate **all aspects of speech** with **particular emphasis** on:
  - **Automatic** versus **volitional** actions
  - **Single postures** versus **sequences of postures**
  - **Simple contexts** versus **more complex** or **novel contexts**
  - **Repetitions of the same stimuli** versus **repetitions of varying stimuli**
  - Tasks for which responses can be judged after auditory versus visual cues, auditory versus tactile cues, visual versus tactile cues, or which combinations seem to produce the best results. *(for example: auditory and visual*)
  - **Fluidity**, **rate**, and **accuracy of speech** in relationship to one another
  - **Performance of tasks** in **multiple** contexts *(For example: spontaneous speech, imitation, elicited speech, discourse, utterances of varying lengths, etc.)*
  - **Impaired auditory** comprehension
  - **Impaired verbal** expression
  - Presence of **paraphasias**
  - **Perseveration**
  - Agrammatism or **grammatical errors**
  - **Nonfluent speech** or **nonmeaningful fluent speech**
  - **Impaired prosodic features** of speech
  - **Difficulty repeating words**, **phrases**, and **sentences**

Chapter Seven: Assessment of Language in Children

Assessment Approaches:

There are **two types** of approaches for **assessing language**:

1) **Psychometric approach**
   - → is a **traditional language assessment** approach with an emphasis on **ranking** individuals according to **norms**
   - → *Performance* is summarized by using **percentile ranks** and **standard scores**
   - → The use of **standardized**, **norm-referenced tests** is emphasized
   - → Advantages:
     - o A broad content area is usually assessed with a high degree of **objectivity**, **reliability**, and **validity**
     - o Norm-referenced tests also help determine whether a **problem exists** and help **identify specific problem** areas
   - → Disadvantages:
     - o Norm-referenced tests often do not **adequately assess** the complex, multidimensional aspects of language
     - o They are **not appropriate** for many of the clients speech-language pathologists typically evaluate [profiles of the clients do not match the norm sample]

2) **Descriptive approach**
   - → Authentic assessment method with a **focus on describing behaviors** and **comparing past performance** to **current performance**.
   - → Advantages:
     - **Language** is assessed in all of its **richness** and **complexity**
     - Allows clinicians to **determine whether** (and if yes, how) t**he presenting problems** are affecting the **client's day-to-day communicative interactions**
   - → Disadvantages:
     - **Reliability** and **validity** of the findings are **dependent** upon the level of expertise of the clinician and how **representative** the language samples obtained are

The most recommended approach: An integrated approach that **combines** aspects of both the **psychometric** and the **descriptive** approaches

Language components:

1) **Semantics**: refers to the meaning of language
2) **Syntactic**: refers to the rules of grammar
3) **Morphologic**: refers to units of meaning
   - **Free morphemes**: units that **can** stand alone (most words)
   - **Bound morphemes**: units that **cannot** stand alone → they must be attached to a free morpheme [suffixes and prefixes]
4) **Pragmatic**: refers to the social aspects of language [eye contact, turn-taking]
5) **Phonologic**: refers to speech sounds, sound patterns, and rules of sound organization

Cognition and Language:

Cognition is not a component of language → but it is related to language

- A child's **cognitive abilities** affect **language** in all aspects
- **Mental processes** for **learning**, **remembering**, and **using knowledge** are essential for **normal language acquisition** and **use**
- It is important to note:
  - their *attention* and *focus*
  - *reasoning ability*
  - *perception*
  - *memory*
  - *organization of self* and *thoughts*
  - and *overall executive function*

Language disorder categories:

- Specific language impairment (SLI)
  - pure language impairment with **no obvious cause** or **co-occurring condition**
  - Children with SLI follow the **same general sequence of language acquisition** as **normally developing children** → although at an **impaired rate**

- Language-learning disability (LLD)
  - believed to be caused by **central nervous system dysfunction**
  - A condition characterized by **difficulties in acquiring** and **using skills** for:
    - *Listening*
    - *Speaking*
    - *Reading*
    - *Writing*
    - *Reasoning*
    - *Mathematics*
- Autism spectrum disorder (ASD) or pervasive developmental disorder (PDD)
  - characterized by **impairment in communication** and **social skills** and stereotyped and **restricted behavioral patterns**
- Brain injury
  - A **neurological condition** that occurs after some type of insult to the brain
    - *Example: traumatic brain injury, stroke, tumor, convulsive disorder, infection, or congenital malformation*
- Mental retardation (MR)
  - A condition characterized by **intellectual function** that is **significantly below normal**
  - Usually caused by a **biological medical condition** or **syndrome**
- Deafness
  - having **minimal** to **no hearing**
  - causes may be **biological** or **environmental**
  - the impact of deafness on language is **profound**

Screening:

All of the components of language need to be **screened** in both **receptive** and **expressive** contexts **quickly** and **efficiently**

Assessment of Early Language development [infants to preschoolers]:

Babies are born with **limited ability to communicate**

- By the time they reach their **fifth birthdays** → **normally developing children** achieve nearly **adult-like communication skills**
- Traditional methods of assessment are not feasible with the youngest clients.
  - → Most toddlers will **not attend** to the **static formal tests** that are commonly used with older children.
  - → **information is gathered through**:
    - **case history form**
    - **questionnaire**
    - **parent interview**
  - → Interaction with the client is **play-based** → with the clinician ***manipulating*** the play situation just enough to **test desired behaviors**
  - → Testing in the child's **natural environment** using **familiar toys**, **people**, and **routines** is ideal

Questions we ask the parents

Evaluating a nonverbal or preverbal child:

- *Does the child use gestures or signs to communicate?*
- *Are there nonspeech vocalizations?*
- *Are there meaningful vocalizations?*
- *How does the child respond to verbal stimulation?*
- *Does the child use eye contact?*
- *Does the child use objects and toys appropriately?*
- *Can the child imitate words?*
- *Does the child attempt to spontaneously produce words?*
- *How does the child communicate intent?*
- *Does the child follow simple commands?*
- *Can the child point to named objects in a picture book or in the environment?*

Evaluating minimally verbal child **[All of the questions above +]**:

- *Does the child name familiar objects?*
- *Can the child count or say the alphabet?*
- *Does the child use any word combinations?*
- *Does the child use simple grammatical morphemes (e.g., -ing, -s)?*
- *What is the child's mean length of utterance?*
- *Does the child understand words and simple phrases?*
- *Does the child take turns in conversation?*

Evaluating a child that speaks in short phrases **[all of the questions above +]**:

- *Does the child respond to multiple-step commands?*
- *Does the child use appropriate syntax?*
- *Does the child use a variety of descriptive and objective words?*
- *Is the child difficult to understand?*
- *What phonological processes are noted?*
- *Does the child demonstrate appropriate back-and-forth communicative exchanges?*

Evaluating a child that is conversational **[all of the questions above +]**:

- *Does the child have narrative ability?*
- *Does the child understand humor?*
- *Can the child respond to complex commands?*

The child's behavior is also important:

- *What is the child's temperament?*
- *Is the child easily distracted?*
- *How determined is the child?*
- *What is the child's attention span?*
- *What are the child's coping behaviors?*
- *Does the child seek help when needed?*
- *Does the child visually focus on and track objects of interest?*

Piaget's Stages of Early Cognitive Development:

Language and **cognition concepts** to examine:

- **Imitation**: Acknowledgement of the existence of a behavior and the ability to repeat it.
- **Deferred imitation**: Imitation of a behavior following a lapse of time.
- **Means-end**: Production of a volitional act to achieve a desired goal.
- **Object permanence**: An understanding that an object exists even though it is not currently seen.
- **Functional use of objects**: The use of an object as it was intended to be used.
- **Symbolic play**: The use of an object to represent something else.

Stages	Age	What occurs
Sensorimotor stage	Birth – 2 years	• Uses senses and motor activities to understand reality • Develops concepts or schemes through physical interaction with the environment • Initially relies on reflexive actions; eventually gains understanding of volition Imitates behaviors • Develops the ability to act in order to achieve a goal (means-end) • Develops an understanding of object permanence Develops an ability to play with objects symbolically
Pre-operational stage	2 – 7 years	• Characterized by egocentricism • Focuses on one dimension in problem solving • Cannot adopt alternative viewpoints (think from another person's perspective) • Develops an ability to categorize objects through direct comparisons • Gradually refines word meanings • Cannot reverse events
Concrete operational stage	7 – 11 years	• Onset of logical operations, although thinking remains concrete • Cannot solve abstract or hypothetical problems • Develops an ability to consider more than one dimension in problem solving • Able to adopt alternative viewpoints • Mentally categorizes objects without direct comparisons • Can reverse events

Formal operational stage	11 – 18 + years	• No longer limited to concrete thinking • Able to mentally generalize and think abstractly • Understands analogies • Uses complex forms of language, including metaphors and sarcasm • Able to reason flexibly and verbally through complex problems • Able to reason through hypothesis testing

Late Talker vs. Language disordered:

It is sometimes **difficult** to determine which children will experience **lasting language impairment** and which will **outgrow it**

- Children who have **fewer than 50 expressive words** or **no word combinations** at **age 2** are at increased risk of **long-term language concerns**.
- Those children who **do not catch up** to their same-age peers **by age 3** demonstrate a **language delay** that is likely to **persist throughout the school years**

Formal language testing:

Questions to consider while choosing a test include:

- *How old is the client?*
- *What are the specific language concerns that need to be evaluated*
- *What is the client's ethnic background?*
- *How much time is available to administer the test?*
- *How well will the client be able to participate in testing?*
- *Is an insurance company, employer, or other agency requiring a certain test?*

Informal assessment:

Informal assessment allows:

→ the clinician to **assess certain aspects of language** more **deeply** than formal assessment allows, and it provides the opportunity to **view a client's functional use of language in natural contexts.**

Informal tasks can be **receptively** or **expressively** based

The **techniques used** will depend upon many things including:

- the age of the child
- his or her current linguistic abilities
- the specific behaviors to be assessed

Example:

- *Ask the child to follow verbal commands.*
- *Ask the child to count, recite the alphabet, or perform other serial tasks*

- *Ask the child to name objects or pictures. Ask the child to point to more than one of a named item. For example, "point to the pencils" (versus pencil).*
- *Ask the child to name items from a category, or identify a category when provided examples.*
- *Ask the child to describe similarities and differences of objects.*
- *Ask the child to place an object (e.g., a block) over, under, and beside the table (to sample basic prepositional understanding).*
- *Ask the child to describe a picture, recount an event, or tell a short story.*
- *Describe absurd situations and ask why they are absurd.*
- *Ask the child to explain how to play a game, such as Go Fish.*
- *Play Simon Says.*
- *Engage in role-playing activities. For example, pretend to serve food at a restaurant; then reverse roles.*
- *Ask the child to guide a blindfolded listener through a task, such as putting lids on pens.*
- *Present what-if scenarios and have the child offer solutions. For example, "What would happen if you forgot to bring your lunch to school?" or "What would you do if you found $100 in your backpack?"*
- *Play deductive "I'm thinking of . . ." games.*

Language sampling and Analysis:

There are **several aspects** of **collecting a language sample** that are especially important for **assessing language disorders**:

- **Collect a representative sample** based on **real conversation**, not a contrived situation.
- Collect **multiple samples**.
- **Vary** the **contexts** and **activities** used to elicit the sample to **assess different aspects of language**.
- Ask others to **interact** with the **client during the sample**, such as a parent, a sibling, a friend, or a teacher → Children commonly vary their language use depending on the audience.
- **Video-record the sample** for later analysis

A **good language sample** may provide the most **useful information** about a client's functional use of language:

- **Form of language**:
  - *Does the child primarily use single words, phrases, or sentences?*
  - *Are the sentences of the subject-verb-object form exclusively?*
  - *Are there mature negatives, interrogatives, and passive sentences?*
  - *Does the child elaborate the noun or verb phrase? Is there evidence of embedding and conjoining?*
- **Understanding of semantic intent**:
  - *Does the child respond appropriately to the various question forms (what, where, who, when, why, how)?*
  - *Does the child confuse words from different semantic classes?*

- **Language use**:
  - *Does the child display a range of illocutionary functions such as asking for information, help, and objects; replying; making statements; providing information?*
  - *Does the child take conversational turns?*
  - *Does the child introduce topics and maintain them through several turns?*
  - *Does the child signal the status of the communication and make repairs?*
- **Rate of speaking**:
  - *Is the rate inordinately slow or fast?*
  - *Are there noticeable or lengthy pauses between the caregiver's and the child's turn?*
  - *Are there noticeable or lengthy pauses between the child's adjacent utterances?*
  - *Does the child use fillers frequently or pause before producing certain words?*
  - *Are there frequent word substitutions?*
- **Sequencing**:
  - *Does the child relate events in a sequential fashion based on the order of occurrence?*
  - *Can the child discuss the recent past or recount stories?*

Assessment of Morphological skill:

The **mean length of utterance** (MLU) is the average number of morphemes (or words, as will be described later) that a client produces in an utterance.

TABLE 7-6 Brown's Stages of Language Development

STAGE	AGE	MLU	LANGUAGE DEVELOPMENT
I	12–26 mos. (I;0–2;2 yrs)	1.0–2.0	First words. Linear simple sentences.
II	27–30 mos. (2;3–2;6 yrs)	2.0–2.5	Linear simple sentences with emergence of grammatical morphemes.
III	31–34 mos. (2;7–2;10 yrs)	2.5–3.0	Noun phrases and auxiliary verbs. Emergence of different sentence modalities (e.g., questions, negatives, imperatives).
IV	35–40 mos. (2;11–3;4 yrs)	3.0–3.75	Emergence of complex sentences. Embedding of sentence elements.
V	41–46 mos. (3;5–3;10 yrs)	3.75–4.5	Compound sentences.

Assessment of Pragmatic skills:

Pragmatic behaviors are **situationally** and **environmentally** specific→ it is helpful to assess pragmatic skills in a **variety** of situations

Pragmatic Behavior	Sample Activities
_____ Respond to greetings	Observe the client's response when you say, "Hi! How are you?" Put your hand out to shake hands.
_____ Make requests	Ask the client to draw a circle but don't immediately provide a pencil. Ask "What would you say to your mom if you were in the grocery store and wanted a candy bar?"
_____ Describe events	Ask the client what he or she did this morning. Ask the client to tell you about a holiday or a special occasion.
_____ Take turns	Ask the client to alternately count or recite the alphabet with you (e.g., you say *a*, client says *b*, you say *c*, client says *d*). Take turns telling one to two lines of *The Three Bears* or another children's story.
_____ Follow commands	Ask the client to turn his or her paper over and draw a happy face or a square. Say to the client, "Touch your ears, then clap your hands twice."
_____ Make eye contact	Consider whether the client has maintained normal eye contact during other parts of this assessment. Ask the client to tell you his or her address or phone number.
_____ Repeat	Ask the client to repeat the following sentences: Michael is 7 years old. The oven door was open. She got a new book for her birthday.
_____ Attend to tasks	Consider how the client has attended to this assessment. Ask the client to describe a picture you provide.

Assessment of Semantic skills:

Semantics is the study of **language meaning**, which can be expressed verbally, vocally, and gesturally.

- **Assessing semantic skills** is difficult because of this **inherent complexity** and also due to a lack of **normative standards**.
- In general, when assessing semantic skills → look for **variety**
- Children with **semantic language disorders** usually demonstrate **limited vocabularies** and **difficulty integrating semantic information** with other aspects of **language** →particularly grammar

When assessing semantic skills, note the following:

- Number of **different words**
- **Unusual use** of words
- **Incorrect word substitutions**
- **Overgeneralizations**
- **Undergeneralizations**
- **Frequent use** of **empty words** such as thing or that
- **Word-finding problems**, such as circumlocutions, repetitions, and frequent pauses

- **Types of words** (e.g., function, prepositions, negatives, descriptive)
- **Excessive use** of **pronouns**
- **Frequent use** of **routinized expressions** such as you know
- **Unusual sentence formulations**
- **Difficulty** with **word comprehension**
- **Difficulty** with **sentence comprehension**
- **Poor understanding** of **nonliteral forms** (e.g., idioms, metaphors, proverbs)
- **Poor understanding** of **common slang term**

Assessment of Syntactic skill:

Syntax refers to **sentence structure**

Children with **language impairments** are likely to demonstrate:

- **Simple less** elaborate **noun phrases**
- **Shorter utterances**
- **Limited range** of **sentence types**
- **Overreliance** on the **S-V-O sentence structure** *[example: I went home. The children are playing soccer]*
- **Lack** of **sentence complexity**
- **Confusion** with **pronoun references**
- **Misinterpretations** of **passive sentences**

Making a Diagnosis:

A child with a language disorder will typically demonstrate **one** or **more** of the following deficiencies:

- **Delayed onset** of language
- **Limited amount** of language
- **Deficiencies** in **syntactic**, **semantic**, and **morphologic components**
- **Deficient cognitive skills**
- **Academic problems**
- **Limited language comprehension**
- **Poor** listening skills
- **Limited conversational skills**
- **Limited ability** to **narrate experiences**
- A **general inappropriate use of language**

Chapter Eight: Assessment of Literacy

Literacy:

Literacy: is commonly defined as an ability to read and write.

- → There is a strong reciprocal relationship between **expressive language** and **literacy**
- → Many of the same linguistic skills are necessary for the acquisition and functional use of both **oral** and **written language**, with additional higher-level skills required for **written language**.

Speech Language Pathologist:

Speech-language pathologists have been involved in the **diagnosis** and **treatment** of **receptive** and **expressive aspects** of language:

- → listening
- → comprehension
- → speaking

Some specific roles and responsibilities for SPL's are:

- **Prevention** of **written language problems**
- **Identification** of clients **with**, or **at risk for**, literacy problems
- **Assessment of reading and writing** as they relate to **spoken communication and academic** (or professional) **achievement**
- **Intervention** for **reading** and **writing deficits**
- Other roles → including **advocating for effective literacy practices**, **advancing the knowledge base**, and **assisting teachers**, **families**, and **students**

Descriptions and Categories of Reading Disabilities:

There are **three main** categories of **reading disability**:

- **Dyslexia** [specific reading disability]
  - → Dyslexia is genetically based and is caused by atypical neurological development
  - → Children with dyslexia are sometimes considered "unexpected reading failures" because they appear to be developing normally until they start trying to read
  - → The primary symptom of dyslexia is poor phonemic awareness.
  - → A child with dyslexia will perform normally on **receptive/expressive language tests**, but poorly on **reading tests**
- **language-based learning disability (LLD)**
  - → This is a more generalized language disability that **includes deficiencies in all areas of language**
  - → A child with an LLD will perform poorly on both **receptive/expressive language tests** and **reading tests**.
- **Hyperlexia**
  - → This is an ability to read words significantly above **age expectations** but without comprehension of what is read.

→ It can be a symptom of autism.

There are certain behaviors and characteristics that children with a reading disability may do:

- **Poor phonemic awareness**
- **Poor word recognition**
- **Difficulty** with **orthographic processing**
- **Difficulty** with **phonetic decoding of new words**
- **Difficulty attaching meaning** to words, phrases, and sentences
- **Difficulty with grammar**, including knowledge of regular and irregular morphemes and knowledge of various sentence structures
- **Difficulty processing complex sentences**
- **Overreliance on contextual cues** → *sometimes guessing* instead of decoding
- **Lack of interest in literature** → frustration instead of pleasure
- **Reduced speaking rate** and **increased pausing** during speaking
- **Limited vocabulary**
- **Poor comprehension** of stories
- **Poor social skills**

Assessment of early literacy:

Preschool-age children with **oral language deficits** are at high risk of developing **written language deficits** in their **school years**

→ Deficits in these aspects that are **identified and remediated early** can significantly increase a **child's potential for academic success later** in life:
  - oral language,
  - phonological awareness,
  - print awareness,
  - metalinguistics

Early indicators of **reading disability** include:

- **Family history** of **reading disability**
- **First word not produced until after 15 months of age**
- **Words not combined until** after **24 months of age**
- **Difficulty pronouncing words** past **6 years of age**
- **Poor memory** for, and **awareness of**, **rhymes** during preschool years
- **Inability to segment words into syllables** before **age 5**

Assessment of Reading:

- The **development of reading** precedes **the development of writing** in much the same way **auditory comprehension** precedes **verbal expression**
- The development of **all aspects of language** begins at **birth**

When testing for a reading disorder, evaluate all aspects of language, with a **particular emphasis** on the child's:

1. **Phonological awareness**
2. **Word fluency**
3. **Narrative schema knowledge**

- When evaluating **older children**, measures of **writing skills** are also important considerations
- A **referral to an audiologist** for an **assessment of hearing** may be necessary to **rule out hearing loss** or **(central) auditory processing disorder**.
- A **vision screen** or **evaluation** may also be necessary to **rule out visual deficiencies**

1. **Phonological awareness**
   - The most distinguishing feature of a reading disability is poor phonological awareness.
   - The child has difficulty identifying and blending together individual phonemes in words
   - Vinson recommends these considerations when assessing phonemic knowledge:
     - **Phonetic segmentation** (sound differentiation)
       → *Can the child count phonemes in a word? Pronounce individual sounds? Delete or add sounds to words? Relocate phonemes in words?*
     - **Phoneme synthesis** (sound blending)
       → *Can the child blend sounds that are presented in isolation to form a word?*
     - **Sound comparison**
       → *Can the child compare the sounds of different words (e.g. which words begin with the same sound: cat, tap, cap?)*

2. **Word Fluency**
   - Another strong indicator of a reading disability is **word fluency** also called **rapid naming skills**
   - **Word fluency** is an ability to name **symbols**, **words**, or **pictures rapidly**.
   - This discriminating skill is **based on speed**, not **accuracy**.
   - **Poor readers** are usually able to **name symbols**, **words**, and **pictures accurately**, but they are characteristically slower than skilled readers.
   - An effective method of evaluating word fluency is to prepare index cards with letters, numbers, pictures, or words.
     - The prompts on the cards will depend upon **the age** and **abilities** of the child
     - Some children cannot be expected to read words but can be expected to name pictures, numbers, or letters.
     - Present each card separately and **take note of the amount of time taken** by the child to name the prompt.
     - **Delay or struggle** is symptomatic of **reading difficulty**

2.5. **Reading Fluency**
   - **Reading fluency** may be assessed in children who can read short paragraphs or longer reading passages.
   - It is a measure of **the average number of words the student correctly reads per minute**.
   - **Poor reading fluency** indicates possible problems with **phonemic awareness**, **decoding skills**, **comprehension**, or **vocabulary**.

- To **determine word fluency** for oral reading:
    1) **Count** the number of **correctly read words** in a passage
    2) **Multiply** that number by 60
    3) Determine **the number of seconds** taken to read the passage
    4) Divide the number obtained in Step 2 by the number of seconds obtained in Step 3

For example, if a student reads 407 words in 4 minutes, 25 seconds, that student's reading rate is 47 words per minute. Step-by-step, that is:

1. 407 words in the passage
2. $407 \times 60 = 24{,}420$
3. 4:25 minutes taken to read the passage = 265 seconds
4. $24{,}420 \div 265 = 92$ words correctly read per minute

- A minimum of **two unrehearsed samples** should be **obtained for calculating reading fluency**.

3. **Narrative Schema Knowledge**
    - Another important component of a literacy assessment is evaluation of **narrative schema knowledge** → which is **knowledge of story structure**.
    - Children with **poor narrative schema knowledge** also demonstrate **poor linguistic complexity and reading comprehension**
    - **Narrative production** requires an ability **to simultaneously sequence events**, **use appropriate vocabulary**, **follow rules of sentence structure**, and **present a story in a cohesive and logical fashion**.
    - As children mature, they are able to **manipulate** story grammars to **weave multiple events** and **more complex layers** into a **single story**
    - There are different strategies for assessing narrative schema knowledge → the **age** and **ability** of the client will dictate the most appropriate method.
        - **<u>One strategy</u>** is to read a short story to the client and ask comprehension questions. For example:
            - → *Who was in the story?*
            - → *Where did the story take place?*
            - → *What was the problem in the story?*
            - → *How was the problem solved?*
            - → *What happened in the end?*
            - → *Did you like the story?*
            - → *What did you like/not like about it?*
            - → *What would you have done if you were (main character)?*
            - → *What would have happened if (change a key element of the story)?*
            - → *What is the title of the story?*
            - → *If you were to give this story a new title, what would it be?*
            - → *Who wrote this story?*
        - **<u>Another strategy</u>** is to ask the client to retell a known story.
            - → Ask the client to tell the story of a popular children's tale

→ Read a story to the client and then ask the client to retell the story
→ Telling stories from **wordless picture books** is also useful for assessing narrative schema knowledge
→ More-capable clients may be able to make up a story or share a story from their lives.

- Regardless of the method used to elicit the narrative sample, analyze the narrative in these areas:
  - *Knowledge of story elements*
  - *Comprehension of the story*
  - *Linguistic complexity of the narrative*

❖ Informal reading inventories:

An **informal reading inventory (IRI)** is a useful **diagnostic tool** for **assessing reading ability** and **comprehension of grade-level material**.

- IRIs enable the clinician to evaluate the student using **authentic classroom-like resources**, thus **providing information** about how well the student is able to read and understand academic literature

Assessment of writing:

Writing is, in general, the most complex form of language.

- Children with **oral expressive language problems** are likely to demonstrate **writing deficiencies** such as **spelling errors**, **syntactic and semantic errors**, **morphologic errors**, **omissions of words or word endings**, and **general content incongruities**
- Writing takes different forms depending on the audience and the writer's purpose.
- In general, assessment for all types of writing should focus on:
  - **Productivity**:
    → *How many sentences are there? How many clauses? How many different ideas are presented? How many words are there altogether?*
  - **Complexity**:
    → *How many different clause types are there? How complex are they? How many words per sentence or clause? How many grammatically correct sentences?*
  - **Appropriateness for audience and topic**:
    → *Is the form appropriate for the topic? Is it written well for the intended audience?*
  - **Cohesiveness**:
    → *Is it organized well? Does it make sense?*
  - **Mechanics**:
    → *Are words spelled correctly? Is punctuation correct? Are capital letters used?*
  - **Analytic aspects**:

→ *Does the writing have the intended effect? How successfully can the writer revise and edit his or her work?*

- **Narrative writing** tells a story or shares an experience. Analyze written narrative in the same way as oral narrative with additional attention paid to writing mechanics. Also, compare a client's written narratives to oral narratives
- **Expository writing** is a more advanced form of writing. It is nonfiction essay writing and its purpose is to explain, describe, or inform. Personal feelings or opinions should not be included [thesis opening paragraph, supporting paragraphs, concluding paragraph]
- **Persuasive writing** is the most advanced form of writing. Its purpose is to convince the reader that a particular point of view is valid and correct. It includes personal opinion, supported by factual information.

❖ Assessment of spelling:
- Evaluating spelling proficiency can provide valuable diagnostic information about phonological awareness and language in general.
- When a student is struggling with spelling, it is helpful to determine why.
- Spelling ability may provide insight into other types of knowledge necessary for written communication.
- Poor spelling may also be a possible indicator of a hearing deficit or auditory processing disorder.
- Poor spelling may reveal weaknesses in one or more of the following linguistic components:
  - Phonemic awareness
  - Orthographic knowledge
  - Semantic knowledge
  - Morphologic knowledge

Chapter Nine: Assessment for Autism Spectrum Disorder and Social Communication Disorder

Characteristics of Autism Spectrum Disorder:

The current definition of ASD is based on two areas of function:

(1) **social communication**
(2) **fixated interests and repetitive behaviors**

- A **diagnosis** of ASD requires **evidence of deficits in both areas**.
- A **severity rating** is then applied to each area based on the amount of support needed.

Severity values are as follows:

- **Level 1** — Requiring support
- **Level 2** — Requiring substantial support
- **Level 3** — Requiring very substantial support

All five of these criteria must be present to positively diagnose ASD:

1) **Impaired Social Communication**
    a) *Deficits in social-emotional reciprocity*
        → The individual demonstrates **abnormal social approach**, l**ack of social initiation or response**, **deficient back-and-forth communicative exchange**, and/or **limited sharing of interests**, **emotions**, or **affect**
    b) *Deficits in nonverbal communication used for social interaction*
        → The individual demonstrates **poorly integrated verbal** and **nonverbal communication**, **abnormal eye contact** and **body language**, **poor knowledge** and **use of gestures**, or **lack of facial expression**.
    c) *Deficits in developing, maintaining, and understanding relationships*
        → The individual does not **adjust behaviors according to social context**, demonstrates **deficient imaginative play**, has **difficulty making friends**, or altogether **lacks interest in peers**

2) **Restricted and Repetitive Interests, Activities, and Behaviors**
    a) *Stereotyped or repetitive speech, motor movements, or use of objects*
        → This may include **abnormal motor behaviors** such as **rocking** or **spinning**, **echolalia**, **idiosyncratic phrases**, or **repetitive and unusual use of objects** such as **flipping**, **spinning**, or **lining up toys**.
    b) *Inflexibility*
        → The individual is **abnormally distressed by small changes in routine**, has **trouble with transitions**, or **expresses rigid patterns of thought**. He or she may **demonstrate ritualized verbal or nonverbal behavior**, insist on the **same driving routes or foods**, or **incessantly question changes to routine**
    c) *Abnormally restricted or fixated interests*
        → The individual demonstrates **unusually strong attachments to** or **preoccupation with unusual objects**, an **extremely limited range of personal interests**, or **perseverative behavior**
    d) *Hyper- or hypoactive sensory behavior*
        → The individual may **demonstrate extreme responses** (overreaction or lack of response) **to sensations** such as **pain**, **hot/cold temperatures**, **sounds**, **textures**, or **smells**. He or she may be fascinated with lights or spinning objects.

3) **The person's social communicative challenges have a negative impact on relationships, academic achievement, and/or occupational performance**

4) **Onset of symptoms occurs in early childhood even if behaviors are not recognized until later when communication demands exceed abilities**

5) **These behaviors cannot be accounted for by intellectual disability, developmental delay, or any other diagnosis**

Autism severity indicator:

Severity Level	Social Communication	Fixated Interests and Repetitive Behaviors
Level 1: Requires Support	• Noticeable deficits in verbal and nonverbal social communication skills without support • Difficulty initiating social interaction • Some atypical or unsuccessful responses to social bids from others • Reduced interest in social interactions	• Behaviors interfere with functioning in one or more contexts • Resists being redirected or interrupted
Level 2: Requires Substantial Support	• Marked deficits in verbal and nonverbal social communication skills even with support • Limited initiation of social interactions • Abnormal response to social bids from others	• Behaviors are apparent to casual observers • Behaviors interfere with functioning in multiple contexts • Some distress when rituals and routines are disrupted • Difficult to redirect from fixated interests
Level 3: Requires Very Substantial Support	• Severe deficits in verbal and nonverbal social communication skills • Limited to no initiation of social interactions • Minimal to no response to social bids from others	• Behaviors interfere significantly with functioning • Significant distress when rituals and routines are disrupted • Very difficult to redirect from fixated interests

Characteristics of Social (Pragmatic) Communication Disorder:

Some clients may seem to have **difficulty with social communication**, yet do not meet the requirements for a diagnosis of ASD. These clients may meet the criteria for **social (pragmatic) communication disorder (SCD)**

Characteristics of SCD are:

- **Difficulty** with **social verbal** and **nonverbal communication** that cannot be accounted for by **intellectual disability**, **specific language impairment**, **autism spectrum disorder**, or **other diagnosis**
- **Difficulty acquiring** and **using spoken** and **written language** → the individual may demonstrate **difficulty following rules for conversation** and **storytelling**, or may **not understand nonliteral or ambiguous language**
- **Inappropriate responses in conversation** → the individual may have **difficulty modifying communication** according to changes in audience or context.
- The **person's social communicative challenges** have a **negative impact** on **relationships, academic achievement**, and/or **occupational performance**.
- **Onset of symptoms** occurs in **early childhood** even if **behaviors** are not **recognized** until later when **communication demands exceed abilities**.

Early Indicators of Autism Spectrum Disorder or Social Communication Disorder:

It is important to **diagnose ASD** or **SCD** as <u>early as possible</u> so that **appropriate interventions** can begin.

- Current research indicates that **diagnoses before children are 3 years of age**, when made by knowledgeable and experienced professionals, **are <u>stable</u>**
- **children** <u>do not</u> **outgrow the disorder**
- In most cases, **early signs** have more to do with what a child <u>*does not do*</u> than what a child does do.

Young children with autism often:

- **Do not respond** to social bids
- **Do not smile** responsively
- **Do not reciprocate** affection
- **Use limited to no eye contact** during interactions
- **Do not imitate** the actions of others (e.g., wave goodbye)
- **Do not repeat behaviors** that produce attention or laughter
- **Show limited interest** in other children
- **Do not understand** gestures or use gestures to communicate
- **Do not engage** in a broad repertoire of functional play activities
- **Do not create** simple play schemes or sequences with toys
- **Do not engage** in imaginative play
- **Engage in repetitive play activities**
- **Demonstrate repetitive motor behaviors**
- **Respond inconsistently** to sounds
- **Show unusual visual interests** *(e.g. spinning objects, studying objects)*

Although the behaviors in the previous list may or may not be early signs of ASD or SCD, the presence of the following behaviors are absolute indicators of a need for further evaluation:

- **No warm smiles** or **joyful expressions** by 6 months
- **No back-and-forth communicative exchange** of **sounds**, **smiles**, or other **facial expressions** by 9 months
- **No babbling** by 12 months
- **No communicative gesturing** by 12 months
- **No single words** by 16 months
- **No meaningful two-word phrases** by 24 months (some echolalic phrases may be present)
- **Significant loss of any language** or **social skills** at any age

Social Communication:

Social communication refers to the **knowledge** and **use** of language and **pragmatics** to interact with another person or group of people.

There are many skills involved in effectively and naturally interacting with others. These include:

- **Reciprocating experiences** and **emotions**
- **Understanding** and **using gestures** and **facial expressions**
- **Following rules** of **conversation**
- **Recognizing social cues** and **adjusting as needed**
- Using **appropriate language** and **voice**

➢ A s**ignificant** and **central component** of both **autism spectrum disorder** and **social communication disorder** is a **client's deficient social communication**

Language Concerns:

Even though **language development** and **use** are <u>not identified</u> as **specific characteristics** of autism or **social communication disorder**, clients with these disorders are likely to **demonstrate certain patterns of language comprehension** and **expression**.

➢ Because of **individual variability**, <u>not all of</u> the behaviors will be seen in every client.

General Comprehension and Expression	• Difficulty with language comprehension • High-pitched, monotonous speech • Echolalia • Stereotypic, meaningless speech • Asocial monologues • Preference for mechanical sounds over human voice • Preoccupations • Reduced interest in communication • Errors in recognizing faces • Poor use of environmental cues • Poor response to commands

Pragmatic Behaviors	• Lack of responsiveness to others • Difficulty with topic maintenance in conversation • Use of only a few communication strategies • Minimal use of gestural communication • Lack of knowledge of speaker and listener roles • Lack of eye contact • Difficulty with topical shifts • Preference for solitude • Reluctance to be touched, hugged, or held
Semantic Patterns	• Slow acquisition of speech • Word-finding difficulties • Faster learning of concrete words than abstract words, particularly abstract words that refer to human relations or emotions • Difficulty using correct names of other people • Restricted use of word meanings (lack or word generalization) • Poor categorization abilities • Poor understanding of related words
Syntactic and Morphologic Patterns	• Reversal of pronouns • Difficulties with morphologic inflections (plurals, possessives, verb tenses) • Overuse of one or two basic sentence patterns • Use of simple and short sentence structures • Difficulty with word order • Omission of grammatical morphemes
Phonologic Patterns	• Variable • Some articulation disorders • Delayed acquisition of speech sound production, although appropriate speech patterns develop over time • Exaggerated articulation • Difficulty with sound segmentation and knowledge of word boundaries

Assessment and Diagnosis:

An **authentic assessment approach** is the most desirable approach for evaluating the speech and language skills of clients with **autism spectrum disorder** or **social communicative disorder**.

→ **Traditional standardized tests** may be used, but many have limitations.
→ Most standardized tests do not evaluate the pragmatic deficits that are typical of these social disorders.

Specific strategies for **assessing clients** with **ASD** or **SCD** include:

- **Interview** teachers, parents, caregivers, and others who spend significant time with the client.
- **Consult with other members of the multidisciplinary team** → Review school records and medical records. Review cognitive assessment results obtained by a psychologist or psychiatrist.

- **Rule out hearing problems**, or determine the degree to which hearing problems are **contributing** to the overall behaviors.
- **Obtain communication samples** in a **variety of settings** → Include one-on-one settings and group settings.
- **Assess the client** during play situations
- **Take note** of inappropriate physical behaviors
- **Consider the client's development of theory of mind**

❖ **Theory of mind (ToM)**

- **Theory of mind** (ToM) is a **person's ability to understand** that **people engage in mental processes**, such as *cognitive knowledge and emotion*, separate from his or her own processes.
- It is an ability to *"read another's mind."*
- Individuals with **ASD** or **SCD** may have **particular delays** and **deficits** in the development of **Theory of mind**

<table>
<tr><th colspan="3">Age of Mastery</th><th colspan="3">Theory of Mind (ToM) Knowledge</th></tr>
<tr><td colspan="6">Metacognitive knowledge</td></tr>
<tr><td>3</td><td>5</td><td>7</td><td>Predict uncomplicated behaviors or situations (e.g., Mommy will get a puzzle out of the game closet, because that is where puzzles are stored.)</td><td>Understand that people can hold false beliefs (e.g., Mom thinks the cookie jar is full; she doesn't know I ate the cookies.)</td><td>Understand nested beliefs (e.g., "Mom thinks that Dad thinks . . .")</td></tr>
<tr><td colspan="6">Emotional Knowledge</td></tr>
<tr><td colspan="2">5</td><td colspan="2">7</td><td>Relate experiences in which they felt sad, happy, mad, scared, or surprised</td><td>Relate experiences in which they felt jealous, guilty, or embarrassed</td></tr>
</table>

It is necessary to obtain samples of the client's communicative behaviors in a variety of clinical and extra-clinical situations. These suggestions may help to elicit certain targeted responses:

- Have the client assemble a simple puzzle. Before giving him or her the puzzle, remove one piece and replace it with a piece that is obviously from a different puzzle.
- Spin a top; when it stops spinning, hand it to the client.
- Place a desirable object out of the client's reach.
- Intentionally fall off your chair.
- When the client is engaged in something interesting, change the scene suddenly by taking away the interesting object and offering a new one.
- Place an object on the edge of a table where it might easily fall off.
- Open a jar of bubbles, blow a few, then close the jar and hand it to the client.
- Show pictures of people who are expressing different emotions. Ask what the people are feeling.
- Play a "let's pretend" game.
- Have the client make up a story. It may be helpful to offer an opening sentence (e.g., "Two brothers were lying in their beds, when suddenly they heard a loud noise").
- Have the client "read" a wordless, plot-based picture book. Ask the client to explain and predict events.
- Have the client interpret video stories that have music and sound effects, but no spoken words.

Chapter Eleven: Assessment of Stuttering and Cluttering

Stuttering:

- **Stuttering** can develop for **no apparent reason**.
- **Stuttering** is **more common among boys than girls**.
- **Stuttering** is **more common among highly sensitive children**.
- Some people are **genetically predisposed to stutter**.
- **The onset of stuttering** usually occurs before **the age of 6**
- Most children **experience a period of disfluent speech** between the **ages of 2 and 5** → some outgrow it whereas others do not.
- **Stuttering is variable** → A person may be completely fluent in one situation and extremely disfluent in another.
- Some **disfluency types** are **more indicative** of a **fluency disorder** than others.
- **Stuttering** causes **personal grief**, **fear**, and **frustration**

    - **Disfluencie**s are often **categorized by type**.

The disfluency types that are most typically associated with a stuttering disorder are:

- part-word repetitions
- monosyllabic whole-word repetitions
- sound prolongations
- silent pauses (blocks)
- broken words

In contrast → the disfluency types that are more frequently associated with **normal disfluency** are *interjections, revisions, multisyllabic whole-word repetitions, and phrase repetitions.*

Disfluency types	Example
Repetitions	
Part-word repetitions	"What ***t-t-t-time*** is it?"
Whole-word repetitions	"***What-what-what*** are you doing?"
Phrase repetitions	"***I want to-I want to-I want to*** do it."
Prolongations	
Sound/syllable prolongations	***"Lllllet*** me do it."
Silent prolongations	A struggling attempt to say a word when there is no sound
Interjections	
Sound/syllable interjections	"***um*** . . . ***um*** I had a problem this morning."
Whole-word interjections	"I had a ***well*** problem this morning."
Phrase interjections	"I had a ***you know*** problem this morning."
Silent pauses	
A silent duration within speech considered abnormal	"I was going to the ***[pause]*** store."
Broken Words	
A silent pause within words	"It was won ***[pause]*** derful."

Incomplete Phrases	
Grammatically incomplete utterances	"***I don't know how to*** . . . Let us go, guys."
Revisions	
Changed words, ideas	"I thought I will write a letter, ***card.***"

Speech Sampling:

Speech samples should be gathered from **more than one session** and, if possible, from **more than one setting** in order to obtain the **most representative sample possible**

- Obtain samples from a **variety of speaking situations** including:
  - *oral reading*
  - *dialogue*
  - *monologue*
- Also obtain samples when **speaking to different audiences** including:
  - *family members*
  - *friends*
  - *peers*
  - *superiors*

For the assessment of stuttering, the following materials may be particularly helpful:

- **Pictures**
- **Narratives**
- **Reading Passages**
- **Syllable-by-Syllable Stimulus Phrases**

The **analysis phase** of the assessment is to determine:

- The **total number of disfluencies**
- **Frequencies of different types of disfluencies**
- **Disfluency indexes**
- The **duration of individual instances of disfluency**
- **Speech rate**
- **Types** and **frequencies of accessory behaviors**

Disfluency index:

A **disfluency index** refers to the percentage of **disfluent speech present** in a speech sample. The **Total Disfluency Index** reflects all disfluencies produced by the client.

Assume that you obtained a 500-word sample from a client with the following number of disfluencies:			
75 repetitions	50 pauses	25 sound prolongations	**150 total disfluencies**

- **Total disfluency index**:
  1. Count the **total number of words** in the speech sample ***(500 in this example)***
  2. Count the **total number of disfluencies *(150)*.**
  3. Divide the **total disfluencies** by the **total words**. In this example: ***150/500 = 0.30.***
  4. Change to a percentage: ***0.30 = 30% Total Disfluency Index***
- **Disfluency index by type**: → *disfluency index for each disfluency type*
  1. Count the **total number of words** in the speech sample ***(500 in this example)***
  2. Count the number of **specified disfluencies *(75 repetitions in this example)***
  3. Divide the **total specified disfluency** (repetitions) by **the total words**. In this example: ***75/500 = 0.15***
  4. Change to a percentage: ***0.15 = 15% Total Repetitions Index***

- **Disfluency index**: → *reflects percentage of each disfluency type based on total disfluency index*
  1. Count the **total number of disfluencies** in the speech sample ***(150 in this example).***
  2. Count the **number of specified disfluencies *(75 repetitions).***
  3. Divide the **total specified disfluency** (repetitions) by **the total disfluencies**. In this example: ***75/150 = 0.50***
  4. Change to a percentage: ***0.50 = 50% of all disfluencies present were repetitions***.

IN THESE CASES, TIME THE DURATION OF THE DISFLUENCIES AND DETERMINE A MEAN DURATION OF DISFLUENCY

Accessory Behaviors:

People who stutter often develop **accessory behaviors** → also called **secondary behaviors** in response to, or in anticipation of stuttering.

- These behaviors are **reinforced** and **become habitual** when the speaker has **initial success** in maneuvering out of or postponing disfluent speech.
- **Accessory behaviors** are ***learned responses*** to stuttering
- These behaviors may include:
  - **Associated motor behaviors** → extraneous movements
  - **Physiologic responses**
  - **Avoidance** → primary or secondary
  - **Expectancy**

Stuttering clients **occasionally or talk around a subject to avoid disfluencies**.

- Specifically, some stutterers tend to avoid difficult:
    - **Sounds**
    - **Words**
    - **Topics**
    - **People** *(e.g., employer, teacher, strangers)*
    - **Situations** *(e.g., ordering in a restaurant, talking on the telephone)*
    - **Communicative events** *(e.g., public speaking, speaking with members of the opposite sex)*

Primary Avoidances	• **Starters**: using words, sounds, gestures, or rituals to initiate speech. • **Postponements**: silences *(e.g., pretending to think)*, ritualistic acts *(e.g., lip licking)*, or verbal stalling. • **Retrials**: repeating a fluent utterance to "hurdle" a feared word or phrase. • **Circumlocutions**: sound, word, or phrase substitutions. • **Antiexpectancies**: altering the communicative text by speaking with an accent, imitating someone else's voice, overemphasizing articulation, speaking rhythmically, whispering, or singing
Secondary Avoidances	• Reducing verbal output or not talking at all. • Relying on others to communicate for them.

Speech Rate:

To calculate speech rate: **Divide the total number of words by the number of minutes your speech took.**

Assessing **speech rate** is an especially important element of the evaluation of stuttering. Evaluate:

- **Overall rate including disfluencies**
- **Normal rate excluding disfluencies**

Assessing feelings and Attitudes:

- Stuttering is a debilitating handicap that can cause feelings of great pain, anguish, and frustration.
- The person who stutters may be corrected, teased, ridiculed, mocked, chastised, avoided, isolated, pitied, or scorned because of the speech disorder.
- He or she is likely to experience negative feelings and attitudes as a result of the communication difficulty
- Understanding a client's feelings and attitudes about his or her stuttering behavior may be helpful for making decisions about the client's care
- Because parents are likely to have fears, anxieties, and concerns of their own about a child's stuttering pattern, it is helpful to consider the attitudes and feelings of the parent as well as the child

Stuttering Diagnosis:

A diagnosis of stuttering disorder is often made if one or more of these conditions exist:

1) The client has a **Total Disfluency Index** of **10% or greater**.
2) The client's disfluency indexes for repetitions, prolongations, and intralexical pauses are **3% or greater**.
3) The **duration** of disfluencies is **1 second or longer**.
4) The most prevalent disfluency types are **part-word repetitions**, **monosyllabic whole-word repetitions**, **sound prolongations**, **silent pauses**, or **broken words**.
5) Secondary accessory behaviors **are present**.
6) **The client's** (or parent's) **degree of concern** is significant.

- Most clinicians agree that normally developing children experience a period of non-fluent speech
  →This **typically occurs** during the **preschool years**, between the **ages of 2 and 5**

In general, a stuttering disorder requiring intervention is more likely if:

- The child is **male**
- Stuttering has continued for **6 months or longer**
- **Onset of stuttering** occurred before the child's third birthday.
- The child **demonstrates associated motor behaviors**.
- **Other speech or language disorders** are present.
- The child or **child's family have strong fears or concerns** about stuttering

Stimulability:

Stimulability of fluency refers to a client's responsiveness to techniques that improve fluency.

- **Imitation** and **adequate instruction** are key elements to successful stimulation.

Technique	Description
Prolonged speech	The clinician seeks to **prolong the client's duration of sounds**, usually with a **slow, well-controlled transition** between sounds and syllables.
Gentle onset/airflow	The stutterer is directed to **initiate vocalization with a stable egressive airflow and a gentle onset of phonation**
Reduced speech rate	The stutterer **maintains a reduced rate of speech,** usually **beginning with single-word productions** and **advancing to longer, more complex utterances**. **Normal phrase boundaries** and **prosodic features** are maintained
Reduced articulatory effort	The client **minimizes articulatory tension** by bringing **the specific articulatory patterns of ongoing speech** into conscious attention.

Cluttering:

Cluttering is a fluency disorder that often coexists with stuttering, but can also be present on its own.

The characteristics of cluttering include:

- **Rapid speech rate**, which negatively affects other aspects of communication
- **Excessive disfluencies** (normal nonfluencies predominate)
- **Coexisting disorders** of language and/or articulation
- **Monotone** voice
- **Indistinct "mumbling" speech** → sound distortions and omissions are common.
- **Errors present in connected speech are less pronounced** or not present during **single-word** articulation tests or during more slowly produced speech segments.
- **Telescoped errors**—for example, *statistical may become stacal*, or *refrigerator may become reor*.
- **Spoonerisms**, in which sounds are transposed in a word, phrase, or sentence—*for example*, *hit the books* may be produced as *bit the hooks*, or *many people think so* may become *many thinkle peep so*.
- **Lack of awareness of the speech disorder**, at least initially → Clients who clutter are sometimes genuinely surprised when the disorder is diagnosed or when other people do not understand them.
- **Short attention span**, restlessness, and hyperactivity
- **Poor handwriting**
- **Poor thought organization** and **expression**
- **Lack of rhythm** or **musical ability**
- **Difficulty in treatment** →Establishing and maintaining a slower speech rate and generalizing treatment behaviors into everyday speech are often difficult

Stuttering	Cluttering
Client is **aware** of disfluencies	Client is **unaware** of disfluencies
Speech becomes **less fluent** when the client concentrates on being fluent	Speech becomes **more fluent** when client concentrates on being fluent
Spontaneous speech may be more fluent than oral reading or directed speech	**Spontaneous speech may be less fluent** than oral reading or directed speech.
Speech is **usually less fluent with strangers**	Speech is usually **more fluent with strangers**
Brief verbalizations are **often more difficult to control**	Brief verbalizations are **often less difficult to control**
Structured retrials **may not result in increased fluency**	Structured retrials **may improve fluency**
More sound and **syllable repetitions** are present	**Fewer sound** and **syllable repetitions** are present

Fewer language problems *(e.g., incomplete phrases, reduced linguistic complexity)* are present	**More language problems** are present
Speech rate **may be normal** when disfluencies are omitted from speech rate calculation	Speech rate may be **produced at a very rapid**, "machine gun" rate
Fewer articulation errors are present	**Multiple articulation errors** may be present

For cluttering → specifically ***prolonged speech*** and ***reduced speech rate*** are the techniques that will help

Chapter Thirteen: Assessment of Neurocognitive Disorders

Assessment of Aphasia:

What is Aphasia?

Aphasia is defined as a loss of language function due to **an injury to the brain** in an area associated with the **comprehension** and **production of language**.

- → Aphasia is most often caused by a **stroke** or **cerebral vascular accident** (CVA)
- → Other etiologies include:
  - *Accident*
  - *Tumor*
  - *Infection*
  - *Toxicity*
  - *Metabolic and nutritional disorders that affect brain function*

Every client will be **different** depending on a variety of factors:

- → Including **the site of the injury**
- → the **severity of the injury**
- → the **uniqueness of the individual**

The fact that clients may vary so *dramatically* from one another makes it **challenging to clearly define aphasia in terms of a set of behaviors and deficits**.

Types of Aphasia:

Type	Characteristics
Nonfluent Aphasias	
Broca's aphasia	• Agrammatism • Effortful speech • Short, telegraphic phrases • Presence of apraxia • Marked naming problems • Slow speech rate, lacking intonation • Poor reading and writing ability • Relatively good auditory comprehension
Transcortical motor aphasia	• Intact repetition • Lack of spontaneous speech • Naming problems • Short, telegraphic sentences • Good articulation • Agrammatism • Paraphasias
Isolation aphasia	• Marked naming difficulty • Severely impaired comprehension • Mild to moderately impaired repetition skills
Global aphasia	• All language functions severely affected • Severe deficits in comprehension and production • Naming problems • Difficulty with gestural skills • Impaired reading and writing
Fluent Aphasia	
Wernicke's aphasia	• Fluent but meaningless speech • Severe auditory comprehension deficit • Jargon, paraphasias, and neologisms • Good articulation and intonation • Naming difficulties • Poor reading comprehension • Writing deficits
Conduction aphasia	• Marked difficulty repeating words and phrases • Only minor comprehension problems • Good articulation and prosody • Naming problems • Recognition of errors with attempts to self-correct

Transcortical sensory aphasia	• Intact repetition • Poor auditory comprehension • Naming difficulties • Paraphasias
Anomic aphasia	• Marked naming problems • Near-normal language • Good comprehension • Good repetition skills • Relatively good auditory comprehension • Good articulation • Good grammatical structures

Although there is variation from one aphasic client to the next, there are certain behaviors and deficits of communication that are characteristic of aphasia. These include:

- **Impaired auditory comprehension**
- **Impaired verbal expression**
- Presence of **paraphasias**
- **Perseveration**
- **Agrammatism**, or grammatical errors
- **Nonfluent speech** or **nonmeaningful fluent speech**
- **Impaired prosodic features** of speech
- **Difficulty repeating** words, phrases, and sentences
- **Problems with naming** and **word finding** (anomia)
- **Impaired reading ability** (alexia or dyslexia)
- **Impaired writing ability** (agraphia or dysgraphia; possibly confounded by loss of use of the dominant right hand due to hemiparesis)
- In bilingual clients, **unequal impairment** between the **two languages**
- **Pragmatic deficits**
- **Difficulty using** or **understanding gesture**

Aphasia Form:

Evaluation of Aphasia

Name: _____ Age: _____ Date: _____

Primary Care Physician: _____

Medical Diagnosis: _____

Date of Incident: _____

Condition Prior to Incident: _____

Date of CT Scan/MRI: _____ Findings: _____

Relevant Medical History: _____

_____

_____

Medications: _____

Examiner's Name: _____

Instructions: Administer selected sections or all sections as appropriate for the client. Specific instructions are provided under each subheading.

Conversational Speech

Use pictures or converse with the client to stimulate speech, noting specific difficulties the client exhibits.

Agrammatism _____

Anomia _____

Circumlocution _____

Disfluency _____

Effortful speech _____

Jargon _____

Paraphasia _____

Perseveration _____

Telegraphic speech _____

Other _____

Checklist for Common Nouns and Functions

	Recognition of Word	Naming Word	Recognition of Functions
fork	_____	_____	_____
key	_____	_____	_____
ball	_____	_____	_____
flashlight	_____	_____	_____
chair	_____	_____	_____
hammer	_____	_____	_____
scissors	_____	_____	_____
watch	_____	_____	_____
pencil	_____	_____	_____
comb	_____	_____	_____
cup	_____	_____	_____
telephone	_____	_____	_____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Form 13-1, continued


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(continues)

- **Yes – No Questions:** Ask questions to evaluate appropriateness of yes and no responses. (Ex.: Are you sitting on a chair?)

- **Following commands:** Ask the client to carry out one-part, two-part and three-part commands. Make sure your client waits until you have finished the entire command before responding. (Ex.: Touch your nose, raise your hand …)

- **Repeating phrases:** Read each phrase and ask the client to repeat it. Syllabic complexity of each phrase increases as you read down the list (the number of syllables for each phrase is indicated in parentheses). Note the syllable length at which the client exhibits difficulty.

- **Logic questions:** Ask questions to evaluate logic and problem-solving skills. (Ex.: Why do you store ice in the freezer? (so it won't melt)

- **Sequencing:** Ask the client to describe the steps necessary to complete the following tasks. Make a note of difficulties with thought organization or sequencing. (Ex.: Make a sandwich)

- **Definition of terms:** Ask the client to define some terms. Note behaviors such as paraphasias and circumlocutions. (Ex.: Car)

- **Number recognition:** Ask the client to identify a set of numbers.

- **Numeric word recognition:** Ask the client to read a set of numbers.

- **Reading words and sentences orally:** Ask the client to read a set of words and sentences. Make a note of specific difficulties.

- **Writing words and sentences:** Give the client a blank sheet of unlined paper and a pencil or pen. Ask him or her to write a set of words and sentences. Observe ease of writing and make a note of paraphasic or spelling errors, incomplete sentences, and overall legibility.

- **Mathematic calculations** (addition, subtraction, multiplication and division)**:** Ask the client to calculate a set of mathematic problems.

Assessment of Right Hemisphere Syndrome:

The **left hemisphere** of the brain is known as the **hemisphere of language function**

- → However, **both cerebral hemispheres** perform specific tasks that complement and are integrated with tasks that are specific to the opposite hemisphere
- → The **left hemisphere** is primarily responsible for basic language functions, such as phonology, syntax, and simple-level semantics
- → The **right hemisphere** is primarily responsible for complex linguistic processing and the nonverbal, emotional aspects of communication

Injury to the **right hemisphere** of the brain results in a unique set of deficits that can significantly **affect a person's ability to communicate and function appropriately in his or her environment**

- → outcomes from right hemisphere damage can vary significantly from one client to another

There are specific impairments that are characteristic of right hemisphere damage (characterized into 4 categories):

Deficits (damage)	Impairments
Perceptual and Attentional Deficit	• Neglect of the left visual field • Difficulty with facial recognition *(prosopagnosia)* • Difficulty with constructional tasks • Impulsivity, distractibility, and poor attention to tasks • Excessive attention to irrelevant information • Denial of deficits *(anosognosia)*
Affective Deficits	• Difficulty expressing emotions • Difficulty recognizing emotions of others • Depression • Apparent lack of motivation
Communicative Deficits	• Difficulty with word retrieval • Impaired auditory comprehension • Reading and writing deficits • Impaired prosodic features of speech • Difficulty with pragmatics • Dysarthria
Cognitive Deficits	• Disorientation • Impaired attention • Difficulty with memory • Poor integration of information • Difficulty with logic, reasoning, planning, and problem solving • Impaired comprehension of inferred meanings • Difficulty understanding humor

Differential Characteristics of Right Hemisphere Syndrome and Aphasia:

Aphasia	Right Hemisphere Syndrome
Significant or dominant problems in **naming, fluency, auditory comprehension, reading** and **writing**	Only mild problems in naming, fluency, auditory comprehension, reading, and writing
No left-sided neglect	**Left-sided neglect**
No denial of **illness**	**Denial** of **illness**
Speech is **generally relevant**	**Speech** is **often irrelevant, excessive, rambling**
Generally **normal affect**	Often **lack of affect**
Intact recognition of **familiar faces**	**Possible impaired recognition** of **familiar faces**
Simplification of **drawings**	Rotation and left-sided neglect
No significant prosodic defect	**Significant prosodic defect**
Appropriate humor	**Inappropriate** humor
May **retell the essence of a story**	May **retell only nonessential, isolated details** (no integration)
May **understand implied meanings**	Understands **only literal meanings**
Pragmatic impairments **less striking**	Pragmatic impairments **more striking** (eye contact, topic maintenance, etc.)
Although **limited in language skills**, **communication is often good**	Although possessing **good language skills**, **communication is very poor**
Pure linguistic deficits are **dominant**	**Pure linguistic deficits** are **not dominant**

Assessment of Clients with traumatic brain injury:

A **traumatic brain injury** (TBI) is the result of an **acute assault on the brain**.

There are **two subcategories** of TBIs:

1) **penetrating** injuries
   → occur when an object (such as a bullet or a knife) penetrates the skull and rips through the soft brain tissue, damaging nerve fibers and nerve cells
   → The neurological **damage is focal** (localized) and the resulting behaviors vary, depending on the severity and location of the injury

2) **closed-head** injuries
   - → are incurred from the collision of the head with an object or surface that **does not penetrate** the skull
   - → Even though the skull remains intact, the brain can be severely damaged
   - → The **damage is diffuse** (nonlocalized), and the resulting behaviors vary depending on the severity and location(s) of the injury

A uniform set of symptoms characteristic of all TBIs does not exist. However, some commonly seen consequences of brain injury include:

- **Inconsistency**
- **Attention deficits**
- **Impaired memory**
- **Impaired language**
- **Disorientation** to **time** and **place**
- **Poor** organization
- **Impaired** reasoning
- **Reduced ability** to **write** or **draw**
- Anomia
- Restlessness
- Irritability
- Distractibility
- **High frustration** and **anxiety**
- **Aggressive** behavior
- **Inconsistent responses**
- **Disorders** of **smell** and **taste**
- **Poor judgment**
- **Poor control** of **emotions**
- **Denial** of **disability**
- **Poor self-care**

- The **Glasgow Coma Scale** (GCS) is a frequently used scoring system for assessing levels of consciousness following TBI.
  - → It is based on objective measures of **eye opening (E)**, **verbal response (V),** and **motor response (M)**.
  - → The score is expressed as individual categories and as a summation of the three categories (e.g., E3 + V3 + M4 = GCS10).
  - → Total scores range from 3 (comatose) to 15 (grossly neurologically intact)

TABLE 13-3 Glasgow Coma Scale

Eye Opening (E)		Motor Response (M)	
Spontaneous	4	Normal	6
To verbal command	3	Localizes pain	5
To pain	2	Withdraws from pain (flexion)	4
No response	1	Decorticate (flexion) rigidity	3
		Decerebrate (extension) rigidity	2
Verbal Response (V)		No response	1
Normal conversation	5		
Disoriented conversation	4	Interpretation of total score:	
Words, but not coherent	3	Mild injury = 13–15 points	
Incomprehensible sounds	2	Moderate injury = 9–12 points	
No response	1	Severe injury (comatose) = 3–8 points	

The assessment of clients with TBI will vary depending upon many factors, including:

- the client's age
- severity of the injury
- current level of consciousness

The **direct assessment** will typically include the following considerations:

- **Visuospatial**, **visuomotor**, and **visuoconstructional** abilities
- General **motor** functioning
- General **emotional** functioning
- **Chewing** and **swallowing** abilities
- **Pragmatic behaviors**
- **Speech**
- **Expressive** and **receptive** language abilities
- **Cognitive** and **intellectual abilities**, including memory, processing, reasoning judgment, and problem-solving
- **Execution** of **activities** of **daily living**

Assessment of clients with dementia (Major Neurocognitive Disorder):

Major Neurocognitive disorder, more commonly known as ***dementia***, is characterized by:

- progressive deterioration of memory
- orientation
- intellectual ability
- behavioral appropriateness

It generally progresses from a **very mild** to a **very severe cognitive impairment** over the course of **months** or **even years**.

There are forms of dementia:

1. Reversible dementia
   → *Example: medical conditions, medication, depression, etc*
2. Irreversible dementia
   → *Example: Alzheimer's disease (most common), multi-infarct dementia (MID), Pick's disease, Parkinson's disease (PD), Huntington's disease (HD), Wilson's disease, supranuclear palsy, Creutzfeldt-Jakob disease, and Korsakoff 's syndrome*

- Most dementias follow a **general pattern** of **progression**.
- This pattern was divided into **three stages** → *Early dementia, intermediate dementia, advanced dementia*
- The following stages are primarily related to dementia of the **Alzheimer's type** → however, several other forms of dementia have similar patterns of progression

Stages	***Name***	***Symptoms***
Stage 1	**Early dementia**	• Slow, insidious onset • Some memory loss • Word-finding problems • Poor attention span • Disorientation • Reasoning and judgment problems • Difficulty with abstract concepts • Empty speech at times • Intact automatic speech • Intact articulation and phonological skills • Intact syntactic skills • Mechanics of writing and reading intact, although meaning may be obscured • Possible anxiety, depression, agitation, and apathy • Attitude of indifference toward deficits
Stage 2	**Intermediate dementia**	• Increasing memory loss (The client may forget the names of loved ones, although usually remembers his or her own name.) • Increasing word-finding deficits • Decreasing orientation • Empty speech • Poor topic maintenance • Intact automatic speech

		• Intact articulation and phonological skills • Intact syntactic skills • Mechanics of writing and reading still intact, although meaning is more obscured • Wandering • Unable to take care of own needs • Inability to perform complex tasks • Perseveratory behaviors such as chewing or lip smacking • Withdrawal from challenging situations • Personality and emotional changes such as delusional behaviors, obsessive behaviors, anxiety, agitation, and previously nonexistent violent behaviors
Stage 3	**Advanced dementia**	• Severely impaired memory • Profound intellectual deterioration • Severely impaired verbal abilities, speech is meaningless or absent. • Unable to participate in social interaction • Physical debilitation • Aimless wandering • Restlessness and agitation • Possible violent outbursts • The client requires assistance for all activities of daily living.

- During the speech-language evaluation, the **case history questions** are especially important for determining the **etiology** and **prognosis** of a client's dementia.
- As many of the client's primary caregivers and family members as possible need to be consulted to offer details related to the **onset** and **progression** of the client's condition.
- In addition to traditional case history questions, the clinician may also want to ask:
  - *What behaviors were first noticed and when?*
  - *How have the behaviors changed over time?*
  - *Was the onset sudden or gradual?*
  - *What other events were occurring in the client's life at the time of onset?*
  - *What is the client's psychiatric history?*
  - *What problems is the client having taking care of his or her daily needs?*
  - *How has the client attempted to compensate for his or her deficits?*
  - *How do you and others currently communicate with the client?*