ASSESSMENT in SPEECH-LANGUAGE PATHOLOGY

A Resource Manual

SIXTH EDITION

Kenneth G. Shipley
Julie G. McAfee

Plural Publishing Inc.

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Kenneth G. Shipley, PhD
Julie G. McAfee, MA, CCC-SLP

Plural Publishing Inc.

PLURAL PUBLISHING
INC.

5521 Ruffin Road
San Diego, CA 92123

e-mail: information@pluralpublishing.com
Website: https://www.pluralpublishing.com

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Preface

Assessment in Speech-Language Pathology: A Resource Manual, Sixth Edition offers students and professionals user-friendly information, materials, and procedures for use in the assessment of communicative disorders. Many reproducible forms, sample reports, and quick-reference tables are provided. Materials published previously, but unavailable in a single source, as well as materials developed specifically for this work are included.

Beginning with the inaugural edition of *Assessment in Speech-Language Pathology: A Resource Manual*, which was first published in 1992, the authors have strived to provide readers with information that is current, relevant, and practical. Every edition has been thoroughly reviewed and updated to provide accurate and applicable information to reflect current practice in our ever-changing profession. This latest sixth edition is no exception. New to this edition:

- New chapter on selective mutism
- New content on transgender voice assessment
- New pictures for eliciting speech-language samples
- Reorganized and updated content related to acquired neurogenic language disorders and speech disorders
- Expanded content on medical conditions associated with communicative disorders
- New images related to hearing considerations, including updated sample tympanograms, audiograms, and the speech banana
- New tables throughout to improve ease of understanding content
- Chapter-by-chapter content updates to reflect current research and practice
- Updated and new recommendations for published assessment tools, sources of additional information, online resources, and apps useful for assessment
- Online access to downloadable forms and PowerPoints lecture slides
- Upgraded soft cover with layflat binding for book longevity and ease of use

Assessment in Speech-Language Pathology: *A Resource Manual, Sixth Edition* is divided into four major sections. Part I highlights preparatory considerations. Psychometric principles are summarized, including standardization, validity, and reliability. Descriptions of norm-referenced testing, criterion-referenced testing, and authentic assessment are provided, including advantages and disadvantages of each approach. Preparatory considerations when working with multicultural clients are described as well.

Part II includes procedures and materials for obtaining assessment information, interpreting assessment data, and reporting assessment findings to clients, caregivers, and other professionals. It also includes a range of interpretive information, interview questions for various and specific communicative disorders, and guidelines with examples for collecting or reporting assessment information.

Part III provides a variety of materials and suggestions for assessing communicative disorders. Chapter 5 includes general assessment procedures, materials, and worksheets common to all disorders. The remaining chapters are dedicated to specific communicative disorders. Each contains a variety of reference materials, worksheets, procedural guidelines, and interpretive assessment information specifically designed to address the unique characteristics of each disorder.

Part IV provides additional resources relevant and helpful for assessment. It includes audiometric principles that are among the expected competencies of speech-language pathologists as they pertain to communicative development and function. It also includes definitions and clinical relevance of many medical conditions, diseases, and syndromes associated with communicative disorders.

Each chapter includes a listing of "Sources of Additional Information." Because the Internet is a dynamic environment, some sites may no longer exist or may have changed in content. Apps appropriate for speech-language assessment are also recommended. Again, this is a burgeoning industry and continually changing. Consider the recommended resources listed in this text a springboard for exploring additional books, websites, and apps for diagnostic purposes.

Purchase of this textbook includes digital access to the content through the PluralPlus companion website. Forms found throughout the text are available in downloadable format to meet individual clinical needs. Many of the stimulus materials used for assessment are also available, including storyboard art, illustrations, and reading passages. These can be used in their digital form or downloaded and printed. Clinicians are encouraged to download content onto a flash drive or other portable storage device so that they have access to these files if they work in environments where Internet access is not readily available.

Assessment in Speech-Language Pathology: A Resource Manual, Sixth Edition can be a valuable resource for beginning or experienced clinicians. No other manual provides such a comprehensive package of reference materials, explanations of assessment procedures, practical stimulus suggestions, and hands-on worksheets and screening forms.

Acknowledgments

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We are grateful to the many publishers and authors who allowed us to include their works in this book. We are thankful for the many readers who inspire us to continually make improvements to each new edition. We appreciate our colleagues who have reviewed portions of this text at various stages of preparation and provided helpful suggestions and comments along the way.

Our families have been especially encouraging and supportive during the development of all editions of this *Resource Manual*. We extend our love and appreciation to Peggy, Jennifer, Adam, Mathias, Janelle, Timothy, and Megan.

Part I

Preparatory Considerations

Chapter 1

Foundations of Assessment

Before venturing into the assessment process, it is necessary to gain an understanding of the underlying principles and philosophies of assessment in speech-language pathology. The foundations of assessment provide the framework for all clinical activities. This chapter will define assessment and describe the foundations of assessment that make it meaningful and useful.

Overview of Assessment

Assessment is the process of collecting valid and reliable information, and then integrating and interpreting it to make a judgment or a decision about something. The outcome of an assessment is usually a diagnosis, which is the clinical decision regarding the presence or absence of a disorder and, often, the assignment of a diagnostic label. Speech-language pathologists use assessment information to make professional diagnoses and conclusions, identify the need for referral to other professionals, identify the need for treatment, determine the focus of treatment, determine the frequency and length of treatment, and make decisions about the structure of treatment (e.g., individual versus group sessions, treatment with or without caregiver involvement). Ultimately, clinical decisions are based on information derived from an assessment process.

For an assessment to be meaningful and useful, it must have foundational integrity. This integrity may be assured if each assessment adheres to these five principles:

1. *A good assessment is thorough.* It should incorporate as much relevant information as possible so that an accurate diagnosis and appropriate recommendations can be made.
2. *A good assessment uses a variety of assessment modalities.* It should include a combination of interview and case history information, formal and informal testing, and client observations.
3. *A good assessment is valid.* It should truly evaluate the intended skills.
4. *A good assessment is reliable.* It should accurately reflect the client's communicative abilities and disabilities. Repeated evaluations of the same client should yield similar findings, provided there has been no change in the client's status.
5. *A good assessment is tailored to the individual client.* Assessment materials that are appropriate for the client's age, gender, skill levels, and ethnocultural background should be used.

Completing an assessment involves gathering relevant information, assimilating it, drawing conclusions, and then sharing the findings and recommendations. We have summarized the process by providing this overview of seven steps a clinician should take in completing an assessment:

1. Obtain historical information about the client, the client's family or caregivers, developmental and medical history, 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 orofacial mechanism.
4. Evaluate the client's functional abilities in the areas of articulation, language, fluency, voice, resonance, and/or cognition. 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. Analyze assessment information to determine diagnosis or conclusions, prognosis, and recommendations.
7. Share clinical findings through formal written records (usually a report) and a meeting with the client or caregiver and other professionals (such as a physician or members of an interdisciplinary team).

The overall emphasis of each assessment differs depending on the client, the type of disorder, the setting, the client's history, the involvement of the caregivers, and other factors. For example:

- Some disorders have extensive histories; others do not.
- Clients have different primary communicative problems. Some exhibit problems of articulation, others of social language, others of fluency, and so forth.
- Some cases involve extensive interviewing; others do not.
- Some cases require detailed written reports, whereas others do not.

Even though assessment emphases differ across clients, some consideration of each of the seven general areas listed above is necessary with most clients.

Assessment Methods

The end purpose of an assessment in speech-language pathology is to draw a conclusion about an individual's communicative abilities. The paths to that end are varied. There are several methods and approaches that are appropriate for validly and reliably collecting assessment data. Regardless of the approach used, always use the most recent edition of a published test. This is required by insurance and law agencies, and it is a best practice to not use outdated or obsolete materials. The following sections describe norm-referenced assessment, criterion-referenced assessment, and authentic assessment approaches. Each method has advantages and disadvantages. Although they are differentiated here, they sometimes overlap. Most clinicians use a combination of these methods to obtain the most complete assessment data.

Norm-Referenced Tests

Most of the commercially available tests used by speech-language pathologists are norm- referenced tests. Norm-referenced tests are always standardized. They allow a comparison of an individual's performance to the performance of a larger group, called a normative group. Norm-referenced tests help answer the question, "How does my client compare to the average?" It is the responsibility of test developers to determine normative standards that will identify *averages* for a given test. Test developers accomplish this by administering the test to a representative sample group. The results of this sample are analyzed to establish the *normal distribution*. This normal distribution then provides a range of scores by which others are judged when they take the same test.

The normal distribution is often depicted using a bell-shaped curve, as shown in Figure 1–1. The normal distribution is symmetrical. The height and width of the bell are dependent upon two

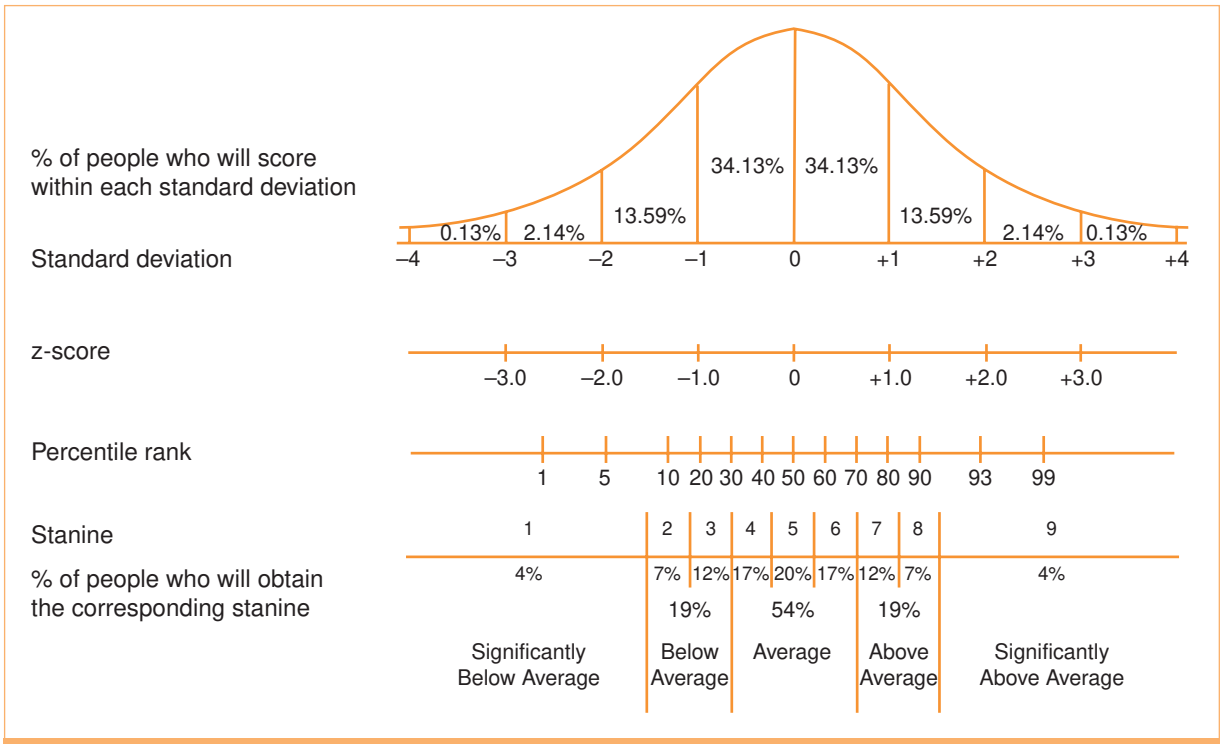

FIGURE 1–1. Depiction of the Normal Distribution.

quantities: the *mean* and the *standard deviation*. The mean determines the peak, and it represents the average performance. (In a perfect distribution, the peak also depicts the *median*, which is the middle of the distribution, and the *mode*, which is the most frequently occurring score.) The standard deviation determines the width, or spread, and it represents the distribution away from the group average. The *Empirical Rule* for a normal curve states that:

- 68% of all outcomes will fall within one standard deviation of the mean (34% on each side).
- 95% of all outcomes will fall within two standard deviations of the mean (47.5% on each side).
- 99.7% of all outcomes will fall within three standard deviations of the mean (49.85% on each side).

There are advantages and disadvantages of using norm-referenced tests. Some of the advantages include the following:

- 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).
- Insurance companies and school districts prefer known test entities for third-party payment and qualification for services.

Some of the disadvantages include the following:

- 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 clients, such as culturally and linguistically diverse clients.

Criterion-Referenced Tests

Criterion-referenced tests do not attempt to compare an individual's performance to anyone else's (as opposed to norm-referenced tests); rather, they identify what a client can and cannot do compared to a predefined criterion. 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. For example, when evaluating an aphasic client, it is not helpful to compare the client's speech and language skills to a normative group. It is much more meaningful to compare the client's abilities to a clinical expectation—in this example, intelligible and functional speech and language.

Criterion-referenced tests are used most often when assessing clients for neurogenic disorders, fluency disorders, and voice disorders. They may also be used for evaluating some aspects of articulation or language. Criterion-referenced tests may or may not be standardized.

There are advantages and disadvantages of using criterion-referenced tests. Some of the advantages include the following:

- The tests are usually objective.
- 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.
- Insurance companies and school districts prefer known test entities for third-party payment and for qualification for services.
- With nonstandardized criterion-referenced tests, there is some opportunity for individualization.

Some of the disadvantages include the following:

- 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.

Authentic Assessment Approach

Authentic assessment is also known as *alternative assessment* or *nontraditional assessment*. Like criterion-referenced assessment, authentic assessment identifies what a client can and cannot do. The differentiating aspect of authentic assessment is its emphasis on contextualized testing. The test environment is more realistic and natural. For example, when assessing a client with a social language disorder, it may not be meaningful to use contrived test materials administered in a clinic. It may be more valid and useful to observe the client in real-life situations, such as interacting with peers at school or talking with family members at home.

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*, which offers a broad portrait of the client's skills across time and in different settings. When appropriate, the client actively participates in reviewing the portfolio and adding new materials. This provides an opportunity for the client to practice self-monitoring and self-evaluation. Artifacts of the client's performance on standardized tests, nonstandardized tests, and treatment tasks are items that are included in the client's portfolio.

Using an authentic assessment approach requires more clinical skill, experience, and creativity than formal assessment does because skills are assessed qualitatively. Testing environments are manipulated to the point of eliciting desired behavior, yet not so much that the authentic aspect of the client's responses is negated. There are several strategies recommended for evaluating clients using an authentic assessment approach, which can be modified for different clinical situations. They are:

- 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

There are advantages and disadvantages to using an authentic assessment approach. Advantages include the following:

- The approach is natural and most like 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.
- The approach offers flexibility.

Disadvantages include the following:

- 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.
- Insurance companies and school districts prefer known test entities for third-party payment and qualification for services.

Dynamic assessment (DA) is a form 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. It is an especially appropriate strategy when assessing clients with cognitive communication disorders or those from culturally and linguistically diverse backgrounds (enabling clinicians to distinguish between a language disorder and language difference).

The dynamic assessment approach follows a test-teach-retest method. Specifically:

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 readministered and results from the pre- and posttest are compared.

The clinician pays particular attention to teaching strategies that were effective at improving the client's success. These may include use of cuing (e.g., verbal, visual, tactile, or auditory), graduated prompting, making environmental adjustments, conversational teaching (e.g., asking questions such as "Why did you . . . ?" and then instructing "Ah, I see. . . ."), or other strategies.

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 versus a language impairment, it is helpful to note that clients who do not demonstrate improvement following teaching likely have a language impairment, whereas clients who are able to make positive changes following brief teaching experiences are likely to have a language difference.

Psychometric Principles

Psychometrics refers to the measurement of human traits, abilities, and certain processes. The basic principles of psychometrics are described in the following sections. Read one or more of the resources on research methodology and evaluation listed in the "Sources of Additional Information" at the end of this chapter for more detailed information on these principles.

Validity

Test validity means that a test truly measures what it claims to measure. There are several types of validity:

- *Face validity* means that a test looks like it assesses the skill it claims to assess. A layperson 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. For example, an articulation test with good content validity will elicit all phonemes in their range of contexts, thereby assessing the spectrum of articulation. Content validity is related to face validity. Content validity, however, judges the actual content of the test (rather than superficial appearance) and is judged by individuals with expert knowledge.
- *Construct validity* means that a test measures the theoretical construct it claims to measure. A construct is an explanation of a behavior or attribute based on empirical observation and knowledge. For example, the construct that children's language skills improve with age is based on language development studies. Therefore, a valid test of childhood language skills will demonstrate this known language-growth construct and show improved language skills when administered to normally developing children of progressively increasing ages.
- *Criterion validity* means a test is related to an external criterion in a predictive or congruent way. There are two types of criterion validity:
  - *Concurrent validity* means the test compares to an established standard. For example, the Stanford-Binet Intelligence Scale is widely accepted as a valid assessment of intelligence. Newer intelligence tests are compared to the Stanford-Binet, which serves as the criterion.
  - *Predictive validity* means the test predicts performance, which is the criterion, in another situation or in the future. There is a relationship between the behaviors the test measures and the criterion behavior or skill. An example is a college entrance exam, such as the Graduate Record Examination (GRE), which is expected to predict future academic performance.

Reliability

Reliability means results are replicable. When administered properly, a test gives consistent results on repeated administrations or with different interpreters judging the same administration. There are several 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:
  - *Intrarater reliability* is established if results are consistent when the same person rates the test on more than one occasion.
  - *Interrater 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.

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. There are many commercially available speech and language assessment tools that are standardized. Most of the standardized tests clinicians use are norm-referenced, but the terms standardized and norm-referenced are not synonymous. 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

It is important to become familiar with this information before using any standardized test for assessment purposes. Lack of familiarity with this information or inappropriate application of it could render results useless or false.

Form 1–1, "Test Evaluation Form," is a worksheet that may be helpful for evaluating test manuals to determine whether they are worthwhile assessment tools. It is also helpful to read test reviews in professional journals or to consult analyses published by the Buros Center for Testing, an organization dedicated to monitoring the quality of commercially published tests.

Standardized Test Administration

Before administering any standardized test, read the accompanying manual. Every test has unique procedures for administration, scoring, and interpretation. The manual will provide critically important information about these aspects of the test. There are some foundational principles that apply to most tests, and these are described in the following sections.

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.

Two examples are presented here. The first is a complicated example, requiring two instances of borrowing—12 months were borrowed from the year column, and 31 days were borrowed from the month column (which became May, not April, after the first borrow, so 31 days borrowed):

Test date is April 2, 2019. Client's birth date is December 12, 2012.

2019	04	02
–2012	12	12

Adjusted after borrowing from month and year columns:

2018	15	33
–2012	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, 2019. Client's birth date is May 10, 2009.

2019	07	25
–2009	05	10
10	2	15

Chronological age is 10 years, 2 months, 15 days.

Easy-to-use chronological age calculators are available online and as apps. The user plugs in the test date and birth date and chronological age is automatically calculated. A few of the free chronological age calculators available include:

- Chronological Age Calculator online, by Pearson Assessments: https://images.pearsonclinical.com/images/agecalculator/agecalculator.htm
- Age Calculator online, by Super Duper Publications: https://www.superduperinc.com/AgeCalculator/
- Super Duper Age Calculator app, by Super Duper Publications
- #1 Chronological Age Calculator app, by home-speech-home

When assessing prematurely born infants and toddlers, consider *adjusted age*, also referred to as *corrected age*. Adjusted age considers 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.

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 prespeech babbling skills in a client who communicates in sentences, or vice versa.

Review test manuals to determine basals and ceilings. Typically, 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, administer items that occur before the suggested starting point 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 questions correctly, the tester will work backward from test Item 20 until the basal is established (i.e., administer test Items 19, 18, 17, etc.).

The test ceiling is also predetermined and stated in the test manual. A ceiling is typically determined by a requisite number of consecutively incorrect responses. It is imperative to review the manual before administering a test. 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. And in some cases, certain subsets of an individual test require a basal and ceiling, whereas other subtests of the same test do not.

Standardized Administration, Modification, and Accommodation

Standardized tests are designed to be administered in a formulaic manner. That makes them, by definition, standardized. It is imperative to administer test items according to the protocol outlined in the test manual. For example, if the test is to be administered without repeating prompts or cuing, then do not repeat or cue. If the test is to be administered within a specified period, do not allow extra time or shorten the time. It is also important to understand the population for which the test was designed. Normative scores are not valid for a client who is not reflected in the normative sample, even when standardized administration is applied. That said, our clients do not always match a test's profile, and special considerations sometimes need to be made when administering a test.

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 aid may assist with recorded responses. As long as the content is not altered and administration procedures are consistent with the manual's instructions, the findings are still considered valid and norm-referenced scores can still be applied.

In contrast, *modifications* are changes to the test's standardized administration protocol. For example, a test giver might reword 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. Findings may still have value from a diagnostic point of view, but the test can no longer be considered a standardized administration. If variance from the standardized procedure is required, always include that information in the written report.

Understanding Standardized Test Scores

Once a test is administered, scores can be calculated and findings can be interpreted. Each test manual provides specific and unique instructions for scoring and interpreting scores. Some of the basic terminology used to explain test data and make it clinically meaningful is defined below.

- The r*aw score* is the initial score obtained based on the number of correct or incorrect responses. Some tests award more than one point for a correct response. Incorrect calculation of raw score will skew all findings and make test results inaccurate. Raw scores are not meaningful until converted to other scores or ratings.
- The *standard score* reflects performance compared to average and the normal distribution. Standard scores are used to determine whether a test taker's performance is average, above average, or below average. Test developers calculate the statistical average of the normative sample and assign it a value. The most common standard score average value is 100 (with a standard deviation of 15), although not every test assigns this value.
- The *standard deviation* reflects the variation within the normal distribution. It determines what is considered average, above average, or below average. Performance –1.5 to –2 standard deviations below the mean is usually considered significantly below average and is clinically a cause for concern.

- The *scaled score* also reflects performance compared to the normative sample. However, scaled scores do not necessarily follow a normal distribution, meaning 50% of the people in the sample group do not necessarily fall above or below the average. Scaled scores allow the tester to compare the abilities of the test taker to the appropriate normative sample (as defined by the test designer in terms of age, gender, ethnicity, etc.).
- The z-*score* is another expression of test-taker performance compared to the normative sample. The *z*-score tells how many standard deviations the raw score is from the mean. The *z*-score is useful because it shows where an individual score lies along the continuum of the bell-shaped curve and thus tells how different the test taker's score is from the average.
- The *percentile rank* tells the percentage of people scoring at or below a given score. For example, scoring in the 75th percentile indicates that the test taker scored higher than 75% of the people taking the same test. The 50th percentile is the median; 50% of the test takers obtained the median score. Clinically, there is usually cause for concern if a client performs near the bottom 7% of the normal distribution.
- The *stanine* (standard nine) is an additional method of ranking an individual's test performance. A stanine is a score based on a 9-unit scale, where a score of 5 describes average performance. Each stanine unit (except for 1 and 9) is equally distributed across the curve. Most people (54%) score stanines of 4, 5, or 6; few people (8%) score a stanine of 1 or 9.
- The *confidence interval* represents the degree of certainty on the part of the test developer that the statistical values obtained are true. Confidence intervals allow for natural human variability to be taken into consideration. Many test manuals provide statistical data for a confidence interval of 95% (some lower, but the higher the better when considering test reliability). This allows the clinician to obtain a range of possible scores in which the true value of the score exists 95% of the time. In other words, a 95% confidence interval provides a range of reliable scores, not just a single reliable score.
- *Age equivalence* (or sometimes *grade equivalence*) reflects the average raw score for a particular age (or grade). Be aware that these scores are the least useful and most misleading scores obtained from a standardized test. Although it seems logical that raw scores transfer easily to age equivalence, age-equivalent scores do not take into account the normal distribution of scores within a population. It would be incorrect to conclude that a 10-year-old child with an age-equivalent score of 8 years is performing below expectations based on age equivalence alone. It could very well be true that the 10-year-old's score is within the range of normal variation. Age-equivalent and grade-equivalent scores are not considered a reliable measure and should generally not be used.

Health Insurance Portability and Accountability Act (HIPAA)

The *Health Insurance Portability and Accountability Act (HIPAA)* is a federal law designed to improve the health care system by:

- Allowing consumers to continue and transfer health insurance coverage after a job change or job loss

- Reducing health care fraud
- Mandating industry-wide standards for electronic transmission of health care information and billing
- Protecting the privacy and confidentiality of health information

The law affects all consumers of health services. It also affects all health care practitioners who transmit any information in electronic form for which a national standard has been established. Many speech-language pathologists, particularly those working in a private practice, are required to comply with the law. Clinicians who are uncertain if they are a "covered entity" (required participant) should certainly do their homework to find out. And, if they are covered entities, they should follow the letter of the law, as there are significant fines for noncompliance. HIPAA is regulated by the U.S. Department of Health and Human Services (DHHS). Detailed information about HIPAA, including what constitutes a covered entity, electronic submission standards, privacy policies, and more, can be found on the DHHS website (http://www.hhs.gov).

Some of the major requirements of HIPAA that affect speech-language pathologists include the following:

- Health care providers must obtain a National Provider Identifier (NPI) number.
- All clients must be given a copy of the clinician's privacy policies. Clients must sign an acknowledgment that they received a copy. The privacy policy must also be posted in a prominent location in the clinician's place of business.
- All protected health information must be handled confidentially. Clinicians may transmit only the minimum information about a client that is necessary to conduct business. This applies to oral, paper, and electronic information.
- National standards for electronic health care transactions must be followed.
- Clinicians must maintain an "accounting of disclosures," which is a record of all instances when a client's information is shared.
- Business associates who manage health care information on behalf of a provider must also comply with HIPAA regulations.

These points are for foundational knowledge only. It cannot be overemphasized that clinicians who are covered entities need to do further research and become informed providers.

Code of Fair Testing Practices in Education

The *Code of Fair Testing Practices in Education* was developed by the Joint Committee on Testing Practices, which is sponsored by professional associations such as the American Psychological Association, the National Council on Measurement in Education, the American Association for Counseling and Development, and the American Speech-Language-Hearing Association. The guidelines in the code were developed primarily for use with commercially available and standardized tests, although many of the principles also apply to informal testing situations.

There are two parts to the code: One is for test developers and publishers, and the other is for those who administer and use the tests. Only the sections for test users are presented here.

Code of Fair Testing Practices in Education

A. Selecting Appropriate Tests. Test users should select tests that meet the intended purpose and that are appropriate for the intended test takers.

1. Define the purpose for testing, the content and skills to be tested, and the intended test takers. Select and use the most appropriate test based on a thorough review of available information.
2. Review and select tests based on the appropriateness of test content, skills tested, and content coverage for the intended purpose of testing.
3. Review materials provided by test developers and select tests for which clear, accurate, and complete information is provided.
4. Select tests through a process that includes persons with appropriate knowledge, skills, and training.
5. Evaluate evidence of the technical quality of the test provided by the test developer and any independent reviewers.
6. Evaluate representative samples of test questions or practice tests, directions, answer sheets, manuals, and score reports before selecting a test.
7. Evaluate procedures and materials used by test developers, as well as the resulting test, to ensure that potentially offensive content or language is avoided.
8. Select tests with appropriately modified forms or administration procedures for test takers with disabilities who need special accommodations.
9. Evaluate the available evidence on the performance of test takers of diverse subgroups. Determine, to the extent feasible, which performance differences may have been caused by factors unrelated to the skills being assessed.

B. Administering and Scoring Tests. Test users should administer and score tests correctly and fairly.

1. Follow established procedures for administering tests in a standardized manner.
2. Provide and document appropriate procedures for test takers with disabilities who need special accommodations or those with diverse linguistic backgrounds. Some accommodations may be required by law or regulation.
3. Provide test takers with an opportunity to become familiar with test question formats and any materials or equipment that may be used during testing.
4. Protect the security of test materials, including respecting copyrights and eliminating opportunities for test takers to obtain scores by fraudulent means.
5. If test scoring is the responsibility of the test user, provide adequate training to scorers and ensure and monitor the accuracy of the scoring process.
6. Correct errors that affect the interpretation of the scores and communicate the corrected results promptly.
7. Develop and implement procedures for ensuring the confidentiality of scores.

C. Reporting and Interpreting Test Results. Test users should report and interpret test results accurately and clearly.

1. Interpret the meaning of the test results, taking into account the nature of the content, norms or comparison groups, other technical evidence, and benefits and limitations of test results.
2. Interpret test results from modified test or test administration procedures in view of the impact those modifications may have had on test results.
3. Avoid using tests for purposes other than those recommended by the test developer unless there is evidence to support the intended use or interpretation.
4. Review the procedures for setting performance standards or passing scores. Avoid using stigmatizing labels.
5. Avoid using a single test score as the sole determinant of decisions about test takers. Interpret test scores in conjunction with other information about individuals.
6. State the intended interpretation and use of test results for groups of test takers. Avoid grouping test results for purposes not specifically recommended by the test developer unless evidence is obtained to support the intended use. Report procedures that were followed in determining who were and who were not included in the groups being compared, and describe factors that might influence the interpretation of results.
7. Communicate test results in a timely fashion and in a manner that is understood by the test taker.
8. Develop and implement procedures for monitoring test use, including consistency with the intended purposes of the test.

D. 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.

1. Inform test takers in advance of the test administration about the coverage of the test, the types of question formats, the directions, and appropriate test-taking strategies. Make such information available to all test takers.
2. When a test is optional, provide test takers or their parents/guardians with information to help them judge whether a test should be taken—including indications of any consequences that may result from not taking the test (e.g., not being eligible to compete for a particular scholarship)—and whether there is an available alternative to the test.
3. Provide test takers or their parents/guardians with information about rights test takers may have to obtain copies of tests and completed answer sheets, to retake tests, to have tests rescored, or to have scores declared invalid.
4. Provide test takers or their parents/guardians with information about responsibilities test takers have, such as being aware of the intended purpose and uses of the

test, performing at capacity, following directions, and not disclosing test items or interfering with other test takers.

5. Inform test takers or their parents/guardians how long scores will be kept on file and indicate to whom, under what circumstances, and in what manner test scores and related information will or will not be released. Protect test scores from unauthorized release and access.
6. Describe procedures for investigating and resolving circumstances that might result in canceling or withholding scores, such as failure to adhere to specified testing procedures.
7. Describe procedures that test takers, parents/guardians, and other interested parties may use to obtain more information about the test, register complaints, and have problems resolved.

Code of Fair Testing Practices in Education. (2004). Washington, DC: Joint Committee on Testing Practices. Reprinted with permission of the Joint Committee on Testing Practices.

Code of Ethics for Speech-Language Pathologists

Speech-language pathologists have an obligation to provide services with professional integrity, achieve the highest possible level of clinical competence, and serve the needs of the public. Clinicians need to be aware of biases and prejudices that may be personally held or prevalent in society. Such biases and prejudices should not affect the client–clinician relationship or the assessment process. All clients should be treated with the utmost respect. It is the clinician's responsibility to determine whether a communicative disorder exists and, if so, recommend a treatment plan that is in the best interests of the client. Negative feelings or attitudes should never affect clinical impressions or decisions.

Principles of professional ethics and conduct are outlined in the American Speech-Language-Hearing Association (ASHA) Code of Ethics. The ASHA Code of Ethics can be found online (http://www.asha.org/Code-of-Ethics/).

Concluding Comments

This chapter highlighted the foundational aspects of assessment. Assessment was defined and the overall assessment process was outlined. Psychometric principles were discussed. Information about norm-referenced, criterion-referenced, and authentic assessment was provided, including advantages and disadvantages of each approach. Although each aspect of assessment was differentiated from the others, in true clinical settings, some of these concepts and approaches overlap.

Sources of Additional Information

Print Sources

Carlson, J. F., Geisinger, K. F., & Jonson, J. L. (Eds.). (2017). *The twentieth mental measurements yearbook*. Lincoln, NE: University of Nebraska Press.

Groth-Marnat, G., & Wright, A. J. (2016). *Handbook of psychological assessment* (6th ed.). Hoboken, NJ: John Wiley.

Losardo, A., & Notari-Syverson, A. (2011). *Alternative approaches to assessing young children* (2nd ed.). Baltimore, MD: Brookes.

Orlikaff, R. F., Schiavetti, N., & Metz, D. E. (2015). *Evaluating research in communicative disorders* (7th ed.). Upper Saddle River, NJ: Pearson.

Paul, R. (2014). *Introduction to clinical methods in communication disorders* (3rd ed.). Baltimore, MD: Brookes.

Electronic Sources

American Speech-Language Hearing Association
https://www.asha.org

Buros Center for Testing
http://www.buros.org

PubMed, U.S. National Library of Medicine, National Institutes of Health
https://www.ncbi.nlm.nih.gov/pubmed

U.S. Department of Health and Human Services, HIPPA
https://www.hhs.gov/hipaa

Form 1–1

Test Evaluation Form

Title of Test: _____

Author: _____

Publisher: _____

Date of Publication: _____

Age Range: _____

Instructions: Evaluate the test in each of the areas below using the following scoring system:

G = Good
F = Fair
P = Poor
NI = No Information
NA = Not Applicable

Purposes of the Test

_____ A. The purposes of the test are described adequately in the test manual.

_____ B. The purposes of the test are appropriate for the intended local use.

Comments:

Construction of the Test

_____ A. Test was developed based on a contemporary theoretical model of speech-language development and reflects findings of recent research.

_____ B. Procedures used in developing test content (e.g., selection and field-testing of test items) were adequate.

Comments:

Procedures

A. Procedures for test administration . . .

_____ 1. Are described adequately in the test manual.

_____ 2. Are appropriate for the local population.

continues

Form 1–1. *continued*

B. Procedures for scoring the test . . .

_____ 1. Are described adequately in the test manual.

_____ 2. Are appropriate for the local population.

C. Procedures for test interpretation . . .

_____ 1. Are described adequately in the test manual.

_____ 2. Are appropriate for the local population.

Comments:

Linguistic Appropriateness of the Test

_____ A. Directions presented to the child are written in the appropriate dialect.

_____ B. Test items are written in the appropriate dialect.

Comments:

Cultural Appropriateness of the Test

_____ A. Types of tasks that the child is asked to perform are culturally appropriate.

_____ B. Content of test items is culturally appropriate.

_____ C. Visual stimuli (e.g., stimulus pictures used with the test) are culturally appropriate.

Comments:

Adequacy of Norms

_____ A. Procedures for selection of the standardization sample are described in detail.

_____ B. Standardization sample is an appropriate comparison group for the population in terms of . . .

_____ 1. Age

_____ 2. Ethnic background

_____ 3. Place of birth

_____ 4. Community of current residence

_____ 5. Length of residence in the United States

_____ 6. Socioeconomic level

_____ 7. Language classification (e.g., limited English proficient)

_____ 8. Language most often used by child at home

_____ 9. Language most often used by child at school

_____ 10. Type of language program provided in school setting

Comments:

Adequacy of Test Reliability Data

_____ A. Test-retest reliability

_____ B. Split-half reliability or internal consistency

_____ C. Rater reliability

_____ D. Alternate form reliability

Comments:

Adequacy of Test Validity Data

_____ A. Content validity

_____ B. Construct validity

_____ C. Concurrent validity

_____ D. Predictive validity

Comments:

Source: Adapted from *Speech and Language Assessment for the Bilingual Handicapped*, 2nd ed. (pp. 175–177), by L. J. Mattes and D. R. Omark, 1991, Oceanside, CA: Academic Communication Associates.

Chapter 2

Multicultural Considerations

Speech-language pathologists are serving an increasing number of culturally and linguistically diverse (CLD) clients. These clients come from a wide range of socioeconomic, educational, linguistic, and cultural backgrounds, and all have unique personal experiences that have shaped who they are. No single chapter or book can provide all the information needed to effectively serve everyone. The materials presented in this chapter are intended to provide core information and serve as a springboard for becoming fully prepared to assess CLD clients.

Cultural Competence

Cultural competence is having the necessary level of knowledge and skills to provide effective care to a client from a cultural group. We, as clinicians, understand our own culture, but we must also learn to understand the culture of our clients to best serve their needs. Developing cultural competence is an ongoing process that requires continual self-assessment and an expanding understanding about another culture. The Campinha-Bacote Model of Care (Campinha-Bacote, 2015) uses the acronym ASKED as a conceptual model for gaining cultural competence. Dr. Campihna-Bacote's model, with definitions slightly modified for relevance for speech-language pathologists, is:

- **A** = Awareness: Are you aware of your own biases and personally held *-isms* (e.g., racism, sexism, classism, etc.)?
- **S** = Skill: Do you have the skills necessary to conduct a speech-language assessment in a culturally sensitive manner?
- **K** = Knowledge: Do you know about the biological, cultural, and linguistic diversity that exists in our society, and do you know the worldviews of different cultures?
- **E** = Encounters: Do you have meaningful and transforming encounters with people from cultures different from your own?
- **D** = Desire: Do you have a desire to become culturally and linguistically competent?

Preassessment Knowledge

Before conducting an evaluation, a clinician needs to understand the client's culture, normal communicative development associated with the culture, and the client's personal history. Without this knowledge, assessment procedures may be inappropriate, and diagnostic conclusions may be incorrect. It is also helpful to be familiar with common acronyms related to linguistic diversity. These are presented in Table 2–1.

Know the Culture of the Client

Every culture has a set of 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, and could lead to an inaccurate diagnosis. We have listed several social customs and beliefs that may be relevant

TABLE 2–1. Terms Related to Linguistic Diversity

AAE	African American English
BICS	Basic interpersonal communication skills
CALP	Cognitive academic language proficiency
CD EL	English learner with a communication disorder
CLD	Culturally and linguistically diverse
EL	English learner
ELL	English language learner
ELP	English language proficiency
ESL	English as a second language
ESOL	English for speakers of other languages
FES	Fluent English speaker
FLEP	Formerly limited English proficient
L1	First language
L2	Second language
LEP	Limited English proficient
LES	Limited English speaker
MAE	Mainstream American English
NES	Non-English speaker
SAE	Standard American English
SLA	Second language acquisition
TESOL	Teachers of English to speakers of other languages

when communicating with CLD clients and caregivers. Information about specific cultural groups was obtained from Goldstein (2000), Roseberry-McKibbin (2018), and Westby (2002). Be aware that 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.* In some cultures (e.g., Asian), having a disability is considered the person's fate and any recommended intervention may be considered futile. In other cultures, parents may feel personally responsible for a child's disability (e.g., certain Hispanic groups). In certain religions (e.g., Hindu, Native American Spiritism), it is believed that a disability is a spiritual gift or punishment. In these cases, the client may be opposed to any intervention that would change the disability. Some cultures (e.g., Asian, Native American) rely on non-Western methods of treatment or healing, such as herbal remedies, massage, hot baths, and acupuncture, and may be skeptical of a clinician's ability to help.

2. *Cultural groups hold diverse views of a woman's role in society.* In some cultures (e.g., Arab), clients or their caregivers may not respect female professionals. 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. Female caregivers may not respect suggestions offered by a female professional who is not also a mother. In some cultures (e.g., Asian), women and young girls are primarily care providers for the family, and school-aged girls may be frequently absent from or drop out of school to care for other family members at home.
3. *Cultural groups hold different views of familial authority.* In some cultures (e.g., Middle Eastern regions, Hispanic, Asian), the father is the spokesperson for the family and the highest authority. Addressing anyone other than the father may be considered disrespectful. In other cultures (e.g., Asian, Middle Eastern regions, Native American), it is the godparents, grandparents, aunts, uncles, or tribal elders who make familial decisions.
4. *Names and titles appropriate to use during communicative exchanges may vary among different cultures.* In some cultures (e.g., Asian), it is more common to address certain family members by relationship rather than name (e.g., *Grandmother* rather than *Mrs. Chang*). When unsure, it is best to simply ask how an individual prefers to be addressed.
5. *Certain cultural groups may be uncomfortable with some case history and interview questions that are often asked as part of an assessment.* In some cultures (e.g., African American), certain questions may be perceived as rude and highly personal. In these cases, it is wise to establish a rapport with the client and caregivers before asking personal questions. This may require that all the salient information is gathered across multiple visits rather than during an initial interview.
6. *Certain cultural groups may be uncomfortable with some of the testing practices we traditionally use.* For 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. In our mainstream culture, it is common to ask a child, "Where is your nose?" even when we already know where the child's nose is. Some CLD clients (e.g., Native American) would probably not answer the question so as not to insult the person asking. In a diagnostic session, this cultural difference requires the clinician to be particularly creative in assessing a client's speech and language abilities. In some cultures (e.g., African American, Hispanic, Native American), children learn mostly by observation. These clients may be unwilling to attempt unfamiliar tasks or may expect a demonstration of assessment tasks. "Testing" itself may be a completely unfamiliar concept.
7. *Individual achievement is viewed differently among cultural groups.* In some cultural groups (e.g., Middle Eastern, African American), group performance is valued more highly than individual performance; showing individual achievement, as expected in many traditional testing situations, may be socially inappropriate. Some cultures (e.g., Asian) value humility and modesty very highly. Touting or praising individual achievement may be frowned upon.
8. *Cultural groups hold differing views about a child's behavior in the company of adults.* In some cultural groups (e.g., Asian), children are expected to be seen and not heard. In

other groups, children do not initiate conversations (e.g., Hispanic). In contrast, people from certain cultures (e.g., African American) expect a very high level of conversational participation from their children.

9. *Cultural groups maintain different views about the use of eye contact in communication.* In some cultures (e.g., African American, Hispanic), it is disrespectful for a child to make frequent or prolonged eye contact with adults because it is perceived as a challenge to authority. In Asian populations, adults also avoid prolonged eye contact with other adults. In contrast, in mainstream Western culture, we expect children and adults to look us in the eyes when we speak to them.
10. *Cultural groups view time differently.* In some cultures (e.g., Hispanic, Native American, Middle Eastern, South American), arriving on time for an appointment or answering questions within a proposed time frame is unnecessary.
11. *Different cultural groups express disapproval in varying ways.* In some cultures (e.g., Asian), it can be considered inappropriate to contradict others. Caregivers may appear cooperative and agreeable during interview situations; however, they may be merely "saving face" or showing courteous respect while having no intention of following through with recommendations or requests. They may also smile and appear agreeable, even when they are quite angry.
12. *Perceptions of personal space vary across cultures.* In some cultures (e.g., Middle Eastern, Hispanic, Asian), it may be common to have many people living in a relatively small home or apartment. Also, in some cultures (e.g., Hispanic), physical distance between people is rather close. They may be offended if you step away from them during conversation. In contrast, other cultures (e.g., Japanese) are more comfortable with a greater amount of personal space. In some cultures (African American), physical touch is used to express approval. In contrast, other cultures (Japanese) exhibit very limited physical contact during social interactions.
13. *Certain cultural groups expect varying amounts of small talk before engaging in the business at hand.* In some cultures (e.g., Hispanic, Arab), it is rude to jump right to business without engaging in a satisfactory level of preliminary small talk.
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.

The degree to which an individual has been acculturated into the mainstream culture will shape the adherence to these social rules. Some individuals may not share the values common to their cultural background. In such cases, stereotyping them would be offensive.

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 understand a culture from an insider's perspective without interjecting personal judgments or biases.

The "Clinician's Cultural Competence Worksheet," Form 2–1, is helpful for collecting information about a client's cultural background. There are several ways to obtain this information:

- Interview members of the cultural community.
- Observe members of the community in naturalistic situations.

- Ask the client to share about his or her culture.
- Consult with other professionals who are from the same cultural group or who have extensive experience working with individuals from that group.
- Read relevant professional literature.
- Read classical literature from the client's culture.
- Research cultures using one or more of the online resources recommended at the end of this chapter.

Know the History of the Client

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.

Form 2–2, the "Multicultural Case History Form for Children," and Form 2–3, the "Multicultural Case History Form for Adults," are provided to help collect this information. They are intended to supplement the standard child and adult case history forms provided in Chapter 3 of this manual. Be sensitive about how this information is obtained. In some cases, it may be best to gather it orally. For example, individuals with limited English proficiency may not understand the questions or be able to write the responses. Other respondents may be intimidated or offended by the personal nature of some of the questions. It may be most prudent to ask these questions after having met with the client and caregivers several times to establish a positive rapport. It may be necessary to ask an interpreter to translate the forms.

Know the Normal Communicative Patterns of the Client's Dominant Language

It is important to be familiar with normal communicative patterns associated with a cultural group; otherwise, it will be difficult to determine whether a client is demonstrating a communicative disorder or a communicative difference. The appendices at the end of this chapter include several tables that provide information about normal speech-language patterns and development among African American English speakers, Spanish speakers, and Asian language speakers. Unfortunately, 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